



Alaska Marijuana Control Board
Marijuana Handler Permit
Form MJ-10: Education Course Provider Application

Alcohol and Marijuana Control Office
 550 W 7th Avenue, Suite 1600
 Anchorage, AK 99501
marijuana.licensing@alaska.gov
<https://www.commerce.alaska.gov/web/amco>
 Phone: 907.269.0350

What is this form?

This marijuana handler permit education course provider application is required for all persons and entities seeking to have a marijuana handler permit education course approved by the Marijuana Control Board. Applicants should review **3 AAC 306.700**.

The course curriculum must cover at least the following topics:

- AS 17.37, AS17.38, and 3 AAC 306
- The effects of consumption of marijuana and marijuana products
- How to identify a person impaired by consumption of marijuana
- How to determine valid identification
- How to intervene to prevent unlawful marijuana consumption
- The penalty for an unlawful act by a licensee, an employee, or an agent of a marijuana establishment
- A written test, demonstrating that each student has learned the information correctly

This form must be submitted to AMCO's main office, along with a copy of the course curriculum, before any marijuana handler permit education course provider application will be considered by the board.

Applicant Information

Enter information for the business seeking to be an approved marijuana handler permit education course.

Applicant:	Cannabis Integration				
Course Name:	Alaska Marijuana Handler Certification				
Mailing Address:	757 East 20 th Avenue, Suite 370-439				
City:	Denver	State:	CO	ZIP:	80205
Email Address:	Evan.Erickson@cannabisintegration.com	Phone:	720-984-8569		

In-person Online

Do you intend to provide this course in-person in a classroom-type setting, or online? Check all that apply.

Evan Erickson

7/3/17

Signature of Applicant

Printed Name

Date

OFFICE USE ONLY

Board Meeting Date:		Approved Y/N?:		Course #:	
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July 3rd, 2017

Alcohol and Marijuana Control Office

Attn: Marijuana Control Board

550 West 7th Avenue, Suite 1600

Anchorage, AK 99501

To Marijuana Control Board:

Cannabis Integration is applying to be an Education Course Provider for the State of Alaska Marijuana Handler Permit. Issuing required course completion certificates for individuals interested in pursuing employment at a cannabis establishment; per AAC306.700 (a).

We are based in Denver, Colorado. Co-owner Evan Erickson holds Colorado Dispensary Training Certifications and the other co-owner James Finder has a Masters of Instructional Technology degree with a focus on regulatory compliance, curriculum design, adult education, and training.

Cannabis Integration will provide online course options for individuals to complete the handler permit education course. Individuals whom satisfactorily demonstrate an understanding of the required course material(s) will be issued course completion certificates; per AAC306.700 (b), so that these individuals may submit their certificate(s) of completion to the MCB Director for Handler Permit Cards; per AAC306.700 (c).

We understand that these Handler Permit Cards will be valid for a period of three years and that educational course material reviews(s) will take place at least once every three years and have our educational portal ready (<https://learn.cannabisintegration.com>) to deploy courseware materials to individuals wishing to complete the handler certification course, per AAC306.700.

We are look forward to hearing from you and let us know if you have any questions.

Sincerely,

Evan Erickson | Chief Technology Officer | Cannabis Integration

757 East 20th Avenue, Suite 370-439 | Denver, Colorado 80205

Evan.Erickson@CannabisIntegration.com | (720) 984.8569





(e) The board will review an approved marijuana handler permit education course at least once every three years, and may rescind approval of the course if the board finds that the education course contents are insufficient or inaccurate.

Course Information

Cannabis Integration will offer this Handler Permit Education Course to individuals via an online portal. Cannabis Integration will offer its online course year-round; if approved.

Education Course Curriculum

The curriculum will cover at the following topics. Each section may have multiple modules.

- Section 1: Alaska State Law and Legal Penalties
 - Module 1: AS 17.37
 - Module 2: AS17.38
 - Module 3: 3 AAC 306
- Section 2: The effects of marijuana products.
 - Module 1: The effects of consumption of marijuana and marijuana products
 - Module 2: How to identify a person impaired by consumption of marijuana
- Section 3: Determining valid identification & Preventing unlawful marijuana consumption.
 - Module 1: Standard Operating Procedures
 - How to check for Valid Identification
 - Preventing diversion and unlawful consumption.

Assessment

An online assessment demonstrating that each participant has satisfactorily demonstrated the required information and skills required to obtain an Alaskan handler card.

- Modules will be deployed online through a secure website using identifiable logins.
- Modules will also be developed for the in-person classroom environment.
- Modules will consist of written materials, handouts, videos, reading and summation.
- Once completed, individuals will be provided with certificate of completion. A minimum score of 80% is required to complete the assessments and receive a certificate.

Section 1: State Law(s) and Legal Penalties

- Module 1: AS 17.37
 - AS 17.37 – Medical Uses of Marijuana
 - Sec. 17.37.010 Registry of Patients and Listing of Caregivers.
 - Sec. 17.37.020 Medical Use of Marijuana.





- Sec. 17.37.030 Privileged Medical Use of Marijuana.
- Sec. 17.37.040 Restrictions On Medical Use of Marijuana.
- Sec. 17.37.050 Medical Use of Marijuana By a Minor.
- Sec. 17.37.060 Addition of Debilitating Medical Conditions.
- Sec. 17.37.070 Definitions.
- Sec. 17.37.080 Short Title.
- Module 2: AS 17.38 – Regulation of Marijuana
 - Sec. 17.38.010 Purpose and findings.
 - Sec. 17.38.020 Personal use of marijuana.
 - Sec. 17.38.030 Restrictions on personal cultivation, penalty.
 - Sec. 17.38.040 Public consumption banned, penalty.
 - Sec. 17.38.050 False identification, penalty.
 - Sec. 17.38.060 Marijuana accessories authorized.
 - Sec. 17.38.070 Lawful operation of marijuana-related facilities.
 - Sec. 17.38.080 Marijuana Control Board.
 - Sec. 17.38.090 Rulemaking.
 - Sec. 17.38.100 Marijuana establishment registrations.
 - Sec. 17.38.110 Local control.
 - Sec. 17.38.120 Employers, driving, minors, and control of property.
 - Sec. 17.38.130 Impact on medical marijuana law.
 - Sec. 17.38.900 Definitions.
- Module 3: 3 AAC 306
 - 3 AAC 306.005 - 3AAC 306.100 Licensing, Fees
 - 3 AAC 306.200 - 3AAC 306.260 Local Options
 - 3 AAC 306.300 - 3AAC 306.360 Retail Marijuana Stores
 - 3 AAC 306.400 - 3AAC 306.480 Marijuana Cultivation Facilities
 - 3 AAC 306.500 - 3AAC 306.570 Marijuana Product Manufacturing Facilities
 - 3 AAC 306.600 - 3AAC 306.675 Marijuana Testing Facilities
 - 3 AAC 306.700 - 3AAC 306.755 Operating Requirements for All Marijuana Establishments
 - 3 AAC 306.800 - 3AAC 306.850 Enforcement, Civil Penalties
 - 3 AAC 306.905 - 3AAC 306.990 General Provisions
 - Penalties associated with an unlawful act committed by a licensee, an employee, or an agent of a marijuana establishment

Section 2: The Effects of Marijuana Products

- Module 1: The effects of consumption of marijuana and marijuana products
 - Cannabis Chemistry content licensed from Corporate Integration
 - Cannabis Strains content licensed from Corporate Integration
 - Cannabis as Medicine content licensed from Corporate Integration





- Primary documentation and informational material provided by State of Alaska Department of Health and Social Services
 - <http://www.dhss.alaska.gov/dph/Director/Pages/marijuana/more.aspx>
- Module 2: How to identify someone impaired
 - Dispensary Technician Guide content licensed from Corporate Integration
 - Primary documentation and informational material provided by State of Alaska Department of Health and Social Services
 - <http://dhss.alaska.gov/dph/Director/Pages/marijuana/law.aspx>
 - http://dhss.alaska.gov/dph/Director/Documents/marijuana/MJFactSheet_DUI.pdf
 - <http://www.dhss.alaska.gov/dph/Director/Pages/marijuana/more.aspx>
 - Primary documentation and informational material provided by State of Colorado Marijuana Enforcement Division
 - <https://www.colorado.gov/pacific/marijuana/health-effects-marijuana-use>

Section 3: Determining Valid Identification & Preventing unlawful marijuana consumption

- Module 1: Standard Operating Procedures: How to check for Valid Identification
 - Dispensary Technician Guide content licensed from Corporate Integration
 - Federal Government, Its Agencies, and State Laws content licensed from Corporate Integration
 - National Notary Bulletin (<https://www.nationalnotary.org/notary-bulletin/blog/2016/05/protect-yourself-how-check-id>)
 - Primary documentation and informational material provided by State of Alaska regarding 3 AAC 306.350.
 - Primary documentation and informational material provided by State of Alaska
 - <http://www.dhss.alaska.gov/dph/Director/Documents/marijuana/MJFactSheetAdolescents.pdf>
 - <http://www.dhss.alaska.gov/dph/Director/Pages/marijuana/adults.aspx>

Please let us know if you have any questions and the copy of the Course Curriculum for the Marijuana Handler Certification starts on the next page (6).

Best,

Evan Erickson

Chief Technology Officer





Alaska Marijuana Handler Certification

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Section 1: Alaska State Law

Penalty Details

Marijuana is a Schedule VIA substance under the Controlled Substances chapter of Alaskan criminal law. However, tetrahydrocannabinols, hash, and hash oil are Schedule IIIA substances.

Alaska Stat. § 11.71.160(f)

Schedule IIIA includes:

- (1) hashish;
- (2) hash oil or hashish oil;
- (3) tetrahydrocannabinols;

Alaska Stat. § 11.71.190

- (a) A substance shall be placed in schedule VIA if it is found under AS 11.71.120 (c) to have the lowest degree of danger or probable danger to a person or the public.
- (b) Marijuana is a schedule VIA controlled substance.

Possession for Personal Use

Adults may possess up to one ounce of marijuana and/or to grow up to six marijuana plants (no more than three mature) for non-commercial purposes. Sharing or gifting 1 ounce or less, or 6 plants or less for personal use to persons at least 21 years of age quantities of marijuana is also permitted under the new law; however, the consumption of cannabis in public remains an offense and is punishable by a fine of up to \$100.

Alaska Stat. § 17.38.020

Notwithstanding any other provision of law, except as otherwise provided in this chapter, the following acts, by persons 21 years of age or older, are lawful and shall not be a criminal or civil offense under Alaska law or the law of any political subdivision of Alaska or be a basis for seizure or forfeiture of assets under Alaska law:

- (1) possessing, using, displaying, purchasing, or transporting marijuana accessories or one ounce or less of marijuana;
- (2) possessing, growing, processing, or transporting no more than six marijuana plants, with three or fewer being mature, flowering plants, and possession of the marijuana produced by the plants on the premises where the plants were grown;
- (3) transferring one ounce or less of marijuana and up to six immature marijuana plants to a person who is 21 years of age or older without remuneration;



Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, a fine of no more than Except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater of what's defined by law. If a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments. In imposing a fine under this section, in addition to any other relevant factors, the court shall consider imposing a fine; the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Alaska Stat. § 12.55.125(d), (e)

(d) Except as provided in (i) of this section, a defendant convicted of a class B felony may be sentenced to a definite term of imprisonment of not more than 10 years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (1) if the offense is a first felony conviction and does not involve circumstances described in (2) of this subsection, zero to two years; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085; (2) if the offense is a first felony conviction, the defendant violated AS 11.41.130, and the victim was (A) a child under 16 years of age, two to four years; or (B) was 16 years of age or older, one to three years; (3) if the offense is a second felony conviction, two to five years; (4) if the offense is a third felony conviction, four to 10 years. (e) Except as provided in (i) of this section, a defendant convicted of a class C felony may be sentenced to a definite term of imprisonment of not more than five years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (1) if the offense is a first felony conviction and does not involve circumstances described in (4) of this subsection, probation, with a suspended term of imprisonment of zero to 18 months; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085; (2) if the offense is a second felony conviction, one to three years; (3) if the offense is a third felony conviction, two to five years; (4) if the offense is a first felony conviction, and the defendant violated (A) AS 08.54.720(a)(15), one to two years; (B) AS 28.35.030(n)(1)(A) or 28.35.032(p)(1)(A), 120 days to 239 days; (C) AS 28.35.030(n)(1)(B) or 28.35.032(p)(1)(B), 240 days to 359 days; (D) AS 28.35.030(n)(1)(C) or 28.35.032(p)(1)(C), 360 days to two years.





Alaska Stat. § 12.55.135

Sentences of Imprisonment For Misdemeanors:

<http://www.legis.state.ak.us/basis/statutes.asp#12.55.135>

Ravin v. State, 537 P.2d 494 (Alaska 1975)

Chapter 17.38 The Regulation of Marijuana:

<https://www.commerce.alaska.gov/web/Portals/9/pub/MCB/StatutesAndRegulations/AS17.38.pdf>

Noy v. State, 83 P.3d 545 (Alaska Ct. App. 2003)

AS 11.71.060(a) which prohibits possession of less than eight ounces of marijuana:

<http://caselaw.findlaw.com/ak-court-of-appeals/1182742.html>

Possession within 500 feet of school grounds, a recreation or youth center, or on a school bus is a class C felony punishable by up to 5 years' imprisonment and/or a fine up to \$50,000. It is an affirmative defense to this charge that the violation occurred entirely within the confines of a personal residence.

Alaska Stat. § 11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.

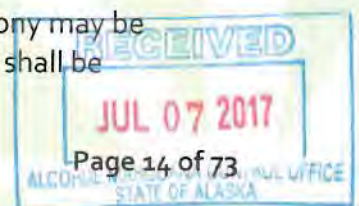
Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater if a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments.

In imposing a fine under of this section, in addition to any other relevant factors, the court shall consider a variety of situations and in imposing a fine, the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Alaska Stat. § 12.55.125(d), (e)

Except as provided in (i) of this section, a defendant convicted of a class B felony may be sentenced to a definite term of imprisonment of not more than 10 years, and shall be





sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (1) if the offense is a first felony conviction and does not involve circumstances described in (2) of this subsection, zero to two years; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085; (2) if the offense is a first felony conviction, the defendant violated AS 11.41.130, and the victim was (A) a child under 16 years of age, two to four years; or (B) was 16 years of age or older, one to three years; (3) if the offense is a second felony conviction, two to five years; (4) if the offense is a third felony conviction, four to 10 years. (e) Except as provided in (i) of this section, a defendant convicted of a class C felony may be sentenced to a definite term of imprisonment of not more than five years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (1) if the offense is a first felony conviction and does not involve circumstances described in (4) of this subsection, probation, with a suspended term of imprisonment of zero to 18 months; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085; (2) if the offense is a second felony conviction, one to three years; (3) if the offense is a third felony conviction, two to five years; (4) if the offense is a first felony conviction, and the defendant violated (A) AS 08.54.720(a)(15), one to two years; (B) AS 28.35.030(n)(1)(A) or 28.35.032(p)(1)(A), 120 days to 239 days; (C) AS 28.35.030(n)(1)(B) or 28.35.032(p)(1)(B), 240 days to 359 days; (D) AS 28.35.030(n)(1)(C) or 23.35.032(p)(1)(C), 360 days to two years.

Possession with Intent to Distribute

It is a class A misdemeanor punishable by up to 1-year imprisonment and/or a fine up to \$10,000 to possess with intent to distribute less than 1 ounce of marijuana. Possession with intent to distribute an ounce or more of marijuana is a class C felony punishable by up to 5 years' imprisonment and/or a fine up to \$50,000.

Alaska Stat. § 11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.

Alaska Stat. § 11.71.050

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fifth degree if the person manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one ounce containing a schedule VIA controlled substance one or more preparations, compounds, mixtures, or substances of an aggregate weight of one ounce or more containing a schedule VIA controlled substance; or possesses fails to make, keep, or furnish any record, notification, order form, statement, invoice, or





information required under AS 17.30. Misconduct involving a controlled substance in the fifth degree is a class A misdemeanor.

Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater if a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments.

In imposing a fine under of this section, in addition to any other relevant factors, the court shall consider a variety of situations and in imposing a fine, the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Alaska Stat. § 12.55.125

Sentences of Imprisonment For Felonies:

<http://www.legis.state.ak.us/basis/statutes.asp#12.55.125>

Alaska Stat. § 12.55.135

Sentences of Imprisonment For Misdemeanors:

<http://www.legis.state.ak.us/basis/statutes.asp#12.55.135>

Sale/Delivery

Retail sales of cannabis by state-licensed entities to those over the age of 21 are regulated in this state. Marijuana sales by unlicensed entities remain subject to criminal penalties.

It is a class A misdemeanor punishable by up to 1-year imprisonment and/or a fine up to \$10,000 to deliver with or without compensation less than 1 ounce of marijuana. Delivery with or without compensation of an ounce or more of marijuana is a class C felony punishable by up to 5 years' imprisonment and/or a fine up to \$50,000.

Alaska Stat. § 11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.





Alaska Stat. § 11.71.050

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fifth degree if the person manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one ounce containing a schedule VIA controlled substance one or more preparations, compounds, mixtures, or substances of an aggregate weight of one ounce or more containing a schedule VIA controlled substance; or possesses fails to make, keep, or furnish any record, notification, order form, statement, invoice, or information required under AS 17.30. Misconduct involving a controlled substance in the fifth degree is a class A misdemeanor.

Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater if a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments.

In imposing a fine under of this section, in addition to any other relevant factors, the court shall consider a variety of situations and in imposing a fine, the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Alaska Stat. § 12.55.125

Sentences of imprisonment for Felonies:

<http://www.akleg.gov/basis/statutes.asp#12.55.125>

Alaska Stat. § 12.55.135

Sentences of Imprisonment For Misdemeanors:

<http://www.legis.state.ak.us/basis/statutes.asp#12.55.135>

Delivery to a person under the age of 19 by a person at least 3 years his senior is a class B felony punishable by up to 10 years' imprisonment and/or a fine up to \$100,000.

Alaska Stat. § 11.71.030

Misconduct Involving a Controlled Substance in the Third Degree. (a) Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the third degree if the person (1) under circumstances not proscribed under AS 11.71.020 (a)(2)-





(6), manufactures or delivers any amount of a schedule IIA or IIIA controlled substance or possesses any amount of a schedule IIA or IIIA controlled substance with intent to manufacture or deliver; (2) delivers any amount of a schedule IVA, VA, or VIA controlled substance to a person under 19 years of age who is at least three years younger than the person delivering the substance; or (3) possesses any amount of a schedule IA or IIA controlled substance (A) with reckless disregard that the possession occurs (i) on or within 500 feet of school grounds; or (ii) at or within 500 feet of a recreation or youth center; or (B) on a school bus. (b) It is an affirmative defense to a prosecution under (a)(3)(A) of this section that the prohibited conduct took place entirely within a private residence located within 500 feet of the school grounds or recreation or youth center, and that the prohibited conduct did not involve distributing, dispensing, or possessing with the intent to distribute or dispense a controlled substance for profit. Nothing in this subsection precludes a prosecution under any other provision of this section or any other section of this chapter. (c) Misconduct involving a controlled substance in the third degree is a class B felony.

Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater if a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments.

In imposing a fine under of this section, in addition to any other relevant factors, the court shall consider a variety of situations and in imposing a fine, the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Cultivation

Adults may possess up to one ounce of marijuana and/or to grow up to six marijuana plants (no more than three mature) for non-commercial purposes. Cultivation shall be in a location where plants are not subject to public view without use of binoculars, aircraft, or other optical aids. One must take reasonable precautions to ensure the plants are secure from unauthorized access. Cultivation may only occur on property lawfully possessed by the cultivator or with consent from the person in lawful possession. Violation of these rules while otherwise in compliance with AS § 17.38.020 is punishable by a fine of up to \$750.





Alaska Stat. § 17.38.030

The personal cultivation of marijuana described in AS 17.38.020(2) is subject to the following terms: (1) marijuana plants shall be cultivated in a location where the plants are not subject to public view without the use of binoculars, aircraft, or other optical aids; (2) a person who cultivates marijuana must take reasonable precautions to ensure the plants are secure from unauthorized access; (3) marijuana cultivation may only occur on property lawfully in possession of the cultivator or with the consent of the person in lawful possession of the property. (b) A person who violates this section while otherwise acting in compliance with AS 17.38.020 (2) is guilty of a violation punishable by a fine of up to \$750.

Cultivation of less than 25 plants of marijuana for personal use in a private residence is protected under the right to privacy of the Alaska constitution. Cultivation of 25 plants or more is a class C felony punishable by up to 5 years' imprisonment and/or a fine up to \$50,000.

Alaska Stat. § 11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.

Alaska Stat. § 12.55.035

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant may be sentenced to pay a fine as authorized in this section or as otherwise authorized by law. Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, except as provided in AS 12.55.036, upon conviction of an offense, a defendant that is an organization may be sentenced to pay a fine not exceeding the greater if a defendant is sentenced to pay a fine, the court may grant permission for the payment to be made within a specified period of time or in specified installments.

In imposing a fine under of this section, in addition to any other relevant factors, the court shall consider a variety of situations and in imposing a fine, the court may not reduce the fine by the amount of a surcharge or otherwise consider the applicability of a surcharge to the offense.

Alaska Stat. § 12.55.125

Sentences of imprisonment for Felonies:

<http://www.akleg.gov/basis/statutes.asp#12.55.125>





Ravin v. State, 537 P.2d 494 (Alaska 1975)

Chapter 17.38 The Regulation of Marijuana:

<https://www.commerce.alaska.gov/web/Portals/9/pub/MCB/StatutesAndRegulations/AS17.38.pdf>

Noy v. State, 83 P.3d 545 (Alaska Ct. App. 2003)

AS 11.71.060(a) which prohibits possession of less than eight ounces of marijuana:

<http://caselaw.findlaw.com/ak-court-of-appeals/1182742.html>

Hash & Concentrates

Hashish, hashish oil, and any other compound, mixture, or preparation containing THC is a Schedule IIIA substance.

Alaska Stat. §11.71.160(f)

Schedule IIIA includes:

- (1) hashish;
- (2) hash oil or hashish oil;
- (3) tetrahydrocannabinols;

Alaska Stat. §11.71.900

Controlled Substances: <http://www.legis.state.ak.us/basis/statutes.asp#11.71.900>

Possessing less than 3 grams of hashish or concentrate is considered misconduct involving a controlled substance in the fifth degree. Misconduct involving a controlled substance in the fifth degree is a Class A misdemeanor. A Class A misdemeanor conviction is punishable by a fine of up to \$10,000 and a sentence of up to 1 year.

Alaska Stat. §11.71.050

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fifth degree if the person manufactures or delivers, or possesses with the intent to manufacture or deliver, one or more preparations, compounds, mixtures, or substances of an aggregate weight of less than one ounce containing a schedule VIA controlled substance one or more preparations, compounds, mixtures, or substances of an aggregate weight of one ounce or more containing a schedule VIA controlled substance; or possesses fails to make, keep, or furnish any record, notification, order form, statement, invoice, or information required under AS 17.30. Misconduct involving a controlled substance in the fifth degree is a class A misdemeanor.





Alaska Stat. §12.55.035(b)(5)

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, a fine of no more than \$10,000 for a class A misdemeanor.

Alaska Stat. §12.55.135(a)

A defendant convicted of a class A misdemeanor may be sentenced to a definite term of imprisonment of not more than (1) one year, if the (A) conviction is for a crime with a mandatory minimum term of 30 days or more of active imprisonment; (B) trier of fact finds the aggravating factor that the conduct constituting the offense was among the most serious conduct included in the definition of the offense; (C) defendant has past criminal convictions for conduct violative of criminal laws, punishable as felonies or misdemeanors, similar in nature to the offense for which the defendant is being sentenced; (D) conviction is for an assault in the fourth degree under AS 11.41.230; or (E) conviction is for a violation of (i) AS 11.41.427; (ii) AS 11.41.440; (iii) AS 11.41.460, if the indecent exposure is before a person under 16 years of age; or (iv) AS 11.61.118(a)(2); (2) 30 days.

Possessing more than three grams or more of hashish or concentrate is considered misconduct involving a controlled substance in the fourth degree. Possessing hashish or concentrates on a school bus or within 500 feet of a school or youth center is also misconduct involving a controlled substance in the fourth degree. Misconduct involving a controlled substance in the fourth degree is a Class C felony. A Class C felony conviction is punishable by a fine of up to \$50,000 and a sentence of 0 -2 years, but previous felony convictions will increase the sentence up to 5 years total.

Alaska Stat. §11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.

Alaska Stat. §12.55.125(e)

Except as provided in (i) of this section, a defendant convicted of a class C felony may be sentenced to a definite term of imprisonment of not more than five years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175. (1) if the offense is a first felony conviction and does not involve circumstances described in (4) of this subsection, zero to two years; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085, and the court may, as a condition of probation under AS 12.55.086, require the defendant to serve an active term of imprisonment within the range specified in this paragraph; (2) if the offense is a second felony conviction, two to four





years; (3) if the offense is a third felony conviction, three to five years; (4) if the offense is a first felony conviction, and the defendant violated AS 08.54.720 (a)(15), one to two years.

Alaska Stat. §12.55.035(b)(4)

Except as provided in AS 12.55.036 , upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, a fine of no more than \$50,000 for a class C felony.

Delivering any amount of a hashish or concentrate to an individual less than 19 years in age and who is at least three years younger than the person delivering the substance is misconduct involving a controlled substance in the first degree. Misconduct involving a controlled substance in the first degree is an unclassified felony which is punishable by a fine of up to \$500,000 and a sentence of 5 - 99 years.

Alaska Stat. §11.71.010

Misconduct Involving a Controlled Substance in the First Degree. (a) Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the first degree if the person (1) delivers any amount of a schedule IA controlled substance to a person under 19 years of age who is at least three years younger than the person delivering the substance; (2) delivers any amount of a schedule IIA or IIIA controlled substance to a person under 19 years of age who is at least three years younger than the person delivering the substance; or (3) engages in a continuing criminal enterprise. (b) For purposes of this section, a person is engaged in a "continuing criminal enterprise" if (1) the person commits a violation of this chapter which is punishable as a felony; and (2) that violation is a part of a continuing series of five or more violations of this chapter (A) which the person undertakes in concert with at least five other persons organized, supervised, or otherwise managed by the person; and (B) from which the person obtains substantial income or resources. (c) Misconduct involving a controlled substance in the first degree is an unclassified felony and is punishable as provided in AS 12.55.

Alaska Stat. §12.55.125(b)

A defendant convicted of attempted murder in the first degree, solicitation to commit murder in the first degree, conspiracy to commit murder in the first degree, kidnapping, or misconduct involving a controlled substance in the first degree shall be sentenced to a definite term of imprisonment of at least five years but not more than 99 years. A defendant convicted of murder in the second degree shall be sentenced to a definite term of imprisonment of at least 10 years but not more than 99 years. A defendant convicted of murder in the second degree or murder of an unborn child under AS 11.41.150 (a)(2) - (4) shall be sentenced to a definite term of imprisonment of at least 20 years but not more than 99 years when the defendant is convicted of the murder of a child under 16 years of age and the court finds by clear and convincing evidence that the defendant (1) was a natural parent, a stepparent, an adopted





parent, a legal guardian, or a person occupying a position of authority in relation to the child; or (2) caused the death of the child by committing a crime against a person under AS 11.41.200 - 11.41.530. In this subsection, "legal guardian" and "position of authority" have the meanings given in AS 11.41.470.

Alaska Stat. §12.55.035(b)(1)

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, a fine of no more than \$500,000 for murder in the first or second degree, attempted murder in the first degree, murder of an unborn child, sexual assault in the first degree, sexual abuse of a minor in the first degree, kidnapping, promoting prostitution in the first degree under AS 11.66.110 (a)(2), or misconduct involving a controlled substance in the first degree.

Delivering, manufacturing, or possessing hashish or THC concentrates with the intent to deliver is considered misconduct involving a controlled substance in the third degree, which is a Class B felony. A Class B felony conviction is punishable by a fine of up to \$100,000 and a sentence of 1 - 3 years, but previous felony convictions will increase the sentence up to 10 years total.

Alaska Stat. §11.71.030

Misconduct Involving a Controlled Substance in the Third Degree. (a) Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the third degree if the person (1) under circumstances not proscribed under AS 11.71.020 (a)(2) - (6), manufactures or delivers any amount of a schedule IIA or IIIA controlled substance or possesses any amount of a schedule IIA or IIIA controlled substance with intent to manufacture or deliver; (2) delivers any amount of a schedule IVA, VA, or VIA controlled substance to a person under 19 years of age who is at least three years younger than the person delivering the substance; or (3) possesses any amount of a schedule IA or IIA controlled substance (A) with reckless disregard that the possession occurs (i) on or within 500 feet of school grounds; or (ii) at or within 500 feet of a recreation or youth center; or (B) on a school bus. (b) It is an affirmative defense to a prosecution under (a)(3)(A) of this section that the prohibited conduct took place entirely within a private residence located within 500 feet of the school grounds or recreation or youth center, and that the prohibited conduct did not involve distributing, dispensing, or possessing with the intent to distribute or dispense a controlled substance for profit. Nothing in this subsection precludes a prosecution under any other provision of this section or any other section of this chapter. (c) Misconduct involving a controlled substance in the third degree is a class B felony.





Alaska Stat. §12.55.125(d)

Except as provided in (i) of this section, a defendant convicted of a class B felony may be sentenced to a definite term of imprisonment of not more than 10 years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (1) if the offense is a first felony conviction and does not involve circumstances described in (2) of this subsection, zero to two years; a defendant sentenced under this paragraph may, if the court finds it appropriate, be granted a suspended imposition of sentence under AS 12.55.085; (2) if the offense is a first felony conviction, the defendant violated AS 11.41.130, and the victim was (A) a child under 16 years of age, two to four years; or (B) was 16 years of age or older, one to three years; (3) if the offense is a second felony conviction, two to five years; (4) if the offense is a third felony conviction, four to 10 years.

Alaska Stat. §12.55.035(b)(3)

Except as provided in AS 12.55.036, upon conviction of an offense, a defendant who is not an organization may be sentenced to pay, unless otherwise specified in the provision of law defining the offense, a fine of no more than \$100,000 for a class B felony.

If charged with misconduct involving a controlled substance in the fourth degree due to the crime occurring within 500 feet of a school or youth center, then the defendant may raise the affirmative defense that all the activity took place within a private residence. This defense does not prevent a lesser charge from being brought.

Alaska Stat. §11.71.040(b)

Misconduct Involving a Controlled Substance in the Fourth Degree. It is an affirmative defense to a prosecution under (a)(4)(A) of this section that the prohibited conduct took place entirely within a private residence located within 500 feet of the school grounds or recreation or youth center. Nothing in this subsection precludes a prosecution under any other provision of this section or any other section of this chapter. While Alaska does recognize medical affirmative defenses for possession of marijuana, those defenses do not apply to hashish or concentrates.

Alaska Stat. §12.71.090

In a prosecution under AS 11.71.030 - 11.71.060 charging the manufacture, delivery, possession, possession with intent to manufacture or deliver, use, or display of a schedule VIA controlled substance, it is an affirmative defense that the defendant is a patient, or the primary caregiver or alternate caregiver for a patient, and (1) at the time of the manufacture, delivery, possession, possession with intent to manufacture or deliver, use, or display, the patient was registered under AS 17.37; (2) the manufacture, delivery, possession, possession with intent to manufacture, deliver, use, or display complied with the requirements of AS 17.37; and (3) if the defendant is the (A) primary caregiver of the patient, the defendant was in physical possession



Alaska Stat. § 12.55.085(d)(3)-(4)

Except as provided in (i) of this section, a defendant convicted of a class B felony may be sentenced to a definite term of imprisonment of not more than 10 years, and shall be sentenced to a definite term within the following presumptive ranges, subject to adjustment as provided in AS 12.55.155 - 12.55.175: (3) if the offense is a second felony conviction, four to seven years; or (4) if the offense is a third felony conviction, six to 10 years.

Forfeiture

Vehicles and other property may be seized for controlled substance violations. Within 20 days of seizure of the property, the commissioner of public safety must notify all persons with an interest in the property. A person has 30 days to respond to this notice with a claim to the property.

Alaska Stat. § 17.30.110

Items subject to forfeiture: <http://www.legis.state.ak.us/basis/statutes.asp#17.30.110>

Alaska Stat. § 17.30.112

Proceedings resulting in forfeiture: <http://www.legis.state.ak.us/basis/statutes.asp#17.30.112>

Alaska Stat. § 17.30.116

Procedure For Forfeiture Action: <http://www.legis.state.ak.us/basis/statutes.asp#17.30.116>

Miscellaneous

Administrative revocation of license to drive for consumption or possession of alcohol or drugs

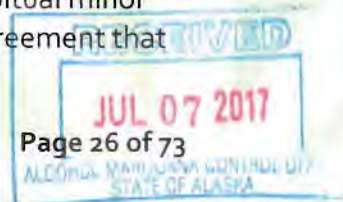
The department shall revoke the driver's license or permit, privilege to drive, or privilege to obtain a license of a person not yet 18 years of age for six months when notified of an informal adjustment and shall revoke the person's driver's license or permit... for an additional six months if informed of unsuccessful adjustment.

Alaska Stat. § 28.15.176

The department shall revoke the driver's license or permit, privilege to drive, or privilege to obtain a license of a person not yet 18 years of age for (1) six months when notified of an informal adjustment under AS 47.12.060(b)(4) and shall revoke the person's driver's license or permit, privilege to drive, or privilege to obtain a license for an additional six months when notified of an unsuccessful adjustment under that paragraph; (2) the time period specified in AS 28.15.185 (b) when notified of an informal adjustment under AS 47.12.060 (b)(5).

Alaska Stat. § 47.12.060(b)(4)

When the department or the entity selected by it decides to make an informal adjustment of a matter under (a)(2) of this section, that informal adjustment for a violation of habitual minor consuming or in possession or control under AS 04.16.050 (d) must include an agreement that





the minor perform 96 hours of community work, provide that the minor's driver's license or permit, privilege to drive, or privilege to obtain a license be revoked for six months, and provide that the driver's license or permit, privilege to drive, or privilege to obtain a license be revoked for an additional six months if the informal adjustment is not successful because the minor has failed to perform community work as ordered, or has failed to submit to evaluation or successfully complete the education or treatment recommended; the department or an entity selected by the department shall notify the agency responsible for issuing driver's licenses of an informal adjustment under this paragraph or of an unsuccessful adjustment described in this paragraph.

Knowingly maintaining a structure used for drug offenses

It is a class C felony punishable by up to 5 years' imprisonment and/or a fine up to \$50,000 to maintain a structure (including vehicles and houses) that the owner knows is used for selling, storing, or using marijuana.

Alaska Stat. § 11.71.040

Except as authorized in AS 17.30, a person commits the crime of misconduct involving a controlled substance in the fourth degree if the person possesses 25 or more plants of the genus cannabis.

Alaska Stat. § 12.55.035

Fines: <http://www.legis.state.ak.us/basis/statutes.asp#12.55.035>

Civil damages

When a person engages in action that causes civil damages while under the influence of a controlled substance and the intoxication contributed significantly to the damages, the person who sold or gave them the substance is strictly liable to him for the damages.

Alaska Stat. § 09.65.205

Civil liability for controlled substances offense:

<http://www.legis.state.ak.us/basis/statutes.asp#09.65.205>

Conditional Release

The state allows conditional release or alternative or diversion sentencing for people facing their first prosecutions. Usually, conditional release lets a person opt for probation rather than trial. After successfully completing probation, the individual's criminal record does not reflect the charge.





Drugged Driving

This state has a per se drugged driving law enacted. In their strictest form, these laws forbid drivers from operating a motor vehicle if they have a detectable level of an illicit drug or drug metabolite (i.e., compounds produced from chemical changes of a drug in the body, but not necessarily psychoactive themselves) present in their bodily fluids above a specific, state-imposed threshold.

Legalization

This state has legalized marijuana for personal use.

Medical Marijuana

This state has medical marijuana laws enacted. Modern research suggests that cannabis is a valuable aid in the treatment of a wide range of clinical applications. These include pain relief, nausea, spasticity, glaucoma, and movement disorders. Marijuana is also a powerful appetite stimulant and emerging research suggests that marijuana's medicinal properties may protect the body against some types of malignant tumors, and are neuroprotective.

Legal Penalties for Licensees

Penalty for unlawful act by licensee, employee, or agent of a marijuana establishment

According to AS 17.37, AS 17.38, and 3 AAC 306, there are many penalties for an unlawful act by a licensee, an employee, or an agent of a marijuana establishment. In addition, violations of other state and federal criminal codes apply. Among the specified unlawful acts (including acts by patients, caregivers, and the general public) are the following: 1. 17.37.030 (d) Nonmedical Use - Notwithstanding the provisions of this section, a person, including a patient, primary caregiver, or alternate caregiver, is not entitled to the protection of this chapter for the person's acquisition, possession, cultivation, use, sale, distribution, or transportation of marijuana for nonmedical use.

2. 17.38.030 (b) Personal Cultivation - A person who violates this section while otherwise acting in compliance with AS 17.38.020 (2) is guilty of a violation punishable by a fine of up to \$750.

3. 17.38.040 Public Consumption - It is unlawful to consume marijuana in public. A person who violates this section is guilty of a violation punishable by a fine of up to \$100. 4. 17.38.050 (b) False Identification - A person who violates this section is guilty of a violation punishable by a fine of up to \$400. 5. 3 AAC 306.020; 035 (e) Application for new license; Renewal - Each person signing an application for a marijuana establishment license must declare under penalty of unsworn falsification that (1) the application is true, correct, and complete; (2) the applicant





has read and is familiar with AS 17.38 and this chapter; and (3) the applicant will provide all information the board requires in support of the application (or renewal application).





Section 1 Quick Reference Table

Offense	Penalty	Incarceration	Maximum Fine
Possession			
Personal Use			
1 ounce or less	None	None	\$0
1 - 4 ounce in your residence*	Not classified	N/A	\$0
1 - less than 4 oz.	Misdemeanor	1 year	\$10,000
4 ounce or more	Felony	5 years	\$50,000
Any amount within 500 feet of school grounds or rec. center**	Felony	5 years	\$50,000
Public consumption	Violation	None	\$100
With Intent to Distribute			
Less than 1 oz.***	Misdemeanor	1 year	\$10,000
1 ounce or more	Felony	5 years	\$50,000
* Based on an Alaskan Supreme Court decision, possession in the home for personal use is protected conduct by the right-to-privacy provision in their state constitution.			
** If charged with possession of marijuana in a school zone, an affirmative defense may be raised in court that the conduct took place entirely within a private residence.			
*** The law will change in November 2016 when retail stores are established to sell up to one ounce. Currently, a person may convey up to one ounce to anyone 21 years old or older without compensation.			
Sale or Delivery			
Less than 1 oz.	Misdemeanor	1 year	\$10,000
1 ounce or more	Felony	5 years	\$50,000
To a person under 19 who is 3 years or younger than the seller.	Felony	10 years	\$100,000
Cultivation			
Up to 6 plants (no more than 3 mature)	None	None	\$0
6 - 25 plants in your residence*	Not classified	N/A	\$0





25 plants or more	Felony	5 years	\$1,000
To a person under 19 who is 3 years or younger than the seller.	Felony	10 years	\$100,000

* Based on an Alaskan Supreme Court decision, possession in the home for personal use is protected conduct by the right-to-privacy provision in their state constitution.

Hash & Concentrates

Possession of 3g or less	Misdemeanor	0 - 1 year	\$10,000
Possession of more than 3g	Felony	0 - 2 years	\$50,000
Delivery, manufacture, or possessing with intent to distribute any amount	Felony	1 - 3 years	\$100,000

Civil Asset Forfeiture

Vehicles and other assets can be seized in a civil proceeding, regardless of whether criminal charges are brought.

Miscellaneous

If under 1 ounce of marijuana is gifted	No Liability	None	\$ 0
Offense within owned structure	Felony	5 years	\$ 500,000

Administrative revocation of license to drive for consumption or possession





Section 2: Effects of Marijuana Products

These resources detail the current legal environment for the medical, personal, and industrial uses, possession, production, manufacture, operation, transfer, testing, and sale of marijuana in Alaska. Medical and Personal use are described in 17.37 and 17.38, and possession of marijuana products and extracts are described in 3 AAC 306, and lay out the following limitations on possession for individuals: one ounce of marijuana in usable form; sixteen ounces of marijuana-infused product in solid form; seven grams of marijuana-infused extract for inhalation; seventy-two ounces of marijuana-infused product in liquid form; and six marijuana plants, with no more than three mature and flowering plants producing usable marijuana at any one time.

The resources contain guidelines, rules, and license requirements for patients, caregivers and guardians of minor patients, the public and adults over the age of 21, and marijuana establishments; defined as retail marijuana stores, marijuana cultivation facilities and brokers, marijuana product manufacturing facilities, and marijuana testing facilities, including their owners, employees, and agents.

What should I know before consuming marijuana?

Not all marijuana products are the same! There are many different kinds (or “strains”) of marijuana. There are also different types of marijuana products. They are typically broken down into three categories, each of which can have very different effects on the consumer. Flowers: These are the buds found on marijuana plants, and they are typically smoked or vaporized. They are what come to mind for most people when they think about marijuana. Each strain of marijuana is different. Along with varying in appearance, smell, and taste, they vary in potency and the effects they have on the consumer. Some marijuana strains can be stimulating and cerebral, whereas others can be more calming or relaxing.

Inexperienced consumers and those trying marijuana again after a long period of time should start by consuming only a small amount, such as one or two puffs. Smoking and vaporizing have an almost immediate effect that intensifies relatively quickly (usually within 10-15 minutes), so wait at least 20-30 minutes before using more so you can get an idea of how it is affecting you. If you are using a vaporizer, keep in mind that, compared to smoking, it is harder to gauge how much you are inhaling, so go slow. Also note that a lot of vaporizer pens — which look similar to electronic cigarettes — use concentrated marijuana oils instead of flowers, which means they can be much more potent.

Concentrates: These are highly concentrated forms of marijuana, such as hashes, waxes, oils, and kief, which are produced by extracting THC and other cannabinoids from the flowers and leaves of marijuana plants. If you compare marijuana to alcohol, flowers would be roughly





equivalent to beer and concentrates would be comparable to hard liquor. Concentrates are usually smoked or vaporized, and concentrated marijuana oils are often found in vaporizer pens. Regardless of your level of experience, go slow when using concentrates. Start with a very small amount and wait at least 20-30 minutes before using more.

Is smoking marijuana safe?

According to the Colorado Department of Public Health and Environment, heavy marijuana smoking (daily or near daily) is strongly associated with chronic bronchitis, including chronic cough, sputum production, and wheezing. Marijuana smoke, both firsthand and secondhand, contains many of the same cancer-causing chemicals as tobacco smoke.

Is vaping or vaporizing safer than smoking marijuana?

Vaping devices heat marijuana to a temperature that releases the active compounds by creating an aerosol or “vapor” without burning the plant material. Some vape pens (i.e., e-cigarettes) heat up concentrated cannabis oil or wax, which can deliver much higher doses of THC than smoking dry plant material. More research is needed to understand the health risks associated with vaping.

Is it safe to eat or drink marijuana-infused products?

Though smoking marijuana has the added risk of harmful smoke exposure, eating or drinking marijuana still exposes the user to THC, the chemical that makes the user feel high. The effects of marijuana peak just minutes after inhaling marijuana smoke or aerosol. However, the effects can peak up to four hours after eating or drinking edibles that contain THC. This delayed effect can make it hard for the user to know how much they should take. For new users, smoking, eating or drinking even one, 5 milligram serving of marijuana is likely to cause impairment. The Colorado Department of Public Health and Environment reported that a marijuana user’s ability to drive, bike, or perform other safety-sensitive activities was impaired after just one dose. They found that THC can affect people differently, so it is critical that a consumer is aware of the amount they are consuming and the impairing effects. The effects from eating or drinking marijuana can last up to 10 hours, meaning someone can be impaired for a long time after eating or drinking marijuana. It’s advised to wait at least eight hours after eating or drinking less than 18 milligrams of THC before driving, biking or performing other safety-sensitive activities. If you have consumed more than 18mg of THC, wait longer than eight hours. The Colorado Department of Public Health and Environment reported that using alcohol and marijuana at the same time often resulted in greater impairment than either one alone.

Are synthetic marijuana substances the same as marijuana?

No. Synthetic marijuana substances, sold under names like “spice” or “K2,” are not the same as marijuana. Synthetic marijuana may cause elevated heart rates and blood pressure,





drowsiness, agitation, hallucinations, seizures, tremors (shaking), vomiting, paranoia, loss of physical control, and comas.

Cannabis as Medicine

Cannabis has a long history of medical use. Cannabis use has been documented for multiple purposes including recreational, spiritual, and medicinal purposes. Different cannabis properties can relieve a spectrum of symptoms. It is used – and, increasingly, considered – to treat many diseases or ailments.

Anecdotal Effects of Indica (typically lower THC, higher in CBN/CBD):

Indica strains, generally, have a more physical (than cerebral) effect. However, the relief of physical symptoms may have a positive psychological effect.

Anecdotal Benefits of Indica (typically lower THC, higher in CBN/CBD):

- Reduces pain
- Relaxes muscles
- Relieves spasms, reduces seizures
- Reduces inflammation
- Aids sleep
- Reduces anxiety and stress
- Reduces nausea
- Stimulates appetite
- Relieves headaches and migraines
- Reduces intra-ocular pressure
- Serves as a bronchodilator and expectorant

Anecdotal Effects of Sativa (typically High THC, low CBN/CBD):

Sativa, when compared with Indica, is classified as possessing a more cerebral effect, as it can be stimulating, uplifting, energizing, and thought provoking. It may also increase focus and creativity, and support immune system health.

Anecdotal Benefits of Sativa (typically High THC, low CBN/CBD):

- Reduces nausea
- Stimulates appetite
- Fights depression
- Promotes creative energy
- Relieves headaches and migraines
- Relaxes muscles
- Relieves pain
- Acts as an expectorant





Selecting the Best Strain and Dosage

The efficacy of cannabis is directly related to strain selection. Strains should be considered with care, and necessary benefits, in mind. Potency and dosage will vary with different strains, growing conditions, and individual plants. Ideally, the smallest, possible, amount of cannabis is consumed – using an appropriately potent strain – to reduce costs, and potential side effects.

Cannabis helps relieving the symptoms to a variety of conditions, including:

- Pain from various ailments and injuries
- Arthritis, bursitis
- Migraines
- Multiple sclerosis
- Hepatitis C
- Fibromyalgia
- Nausea and low appetite
- HIV/AIDS
- Cancer, Chemotherapy
- Crohn's Disease
- Muscular Dystrophy
- Epilepsy
- Parkinson's
- Asthma
- Emphysema
- Glaucoma and other intra-ocular disorders
- Skin diseases such as Pruritus and Psoriasis
- Back pain and muscle spasms
- Paraplegia and Quadriplegia
- Insomnia and other sleep disorders
- Some studies show that THC can counteract brain cancer growth and shrink tumors

Cannabis Chemistry

Cannabis is the only plant in the world known to produce a certain type of chemical called a cannabinoid. There are approximately 60 identified cannabinoids, each having its own unique physiological, synergistic and antagonistic effects. Cannabinoids are in many cannabis strains, and each has its own cannabinoid profile.





Six Most Prominent Cannabinoids:

- THC-9
- THC-8
- Cannabidiol (CBD)
- Cannabinol (CBN)
- Tetrahydrocannabivarin (THCV)
- Cannabichromene (CBC)

Tetrahydrocannabinol, or THC-9, is the main chemical responsible for the 'high' feeling consumers experience. All types of cannabis, whether it be industrial hemp or medical cannabis, will contain some amount of THC-9. The compound has been described as giving feelings of euphoria, stimulating one's mind, and an appetite. It has been reported as a useful muscle relaxant and pain reliever, and to aid against nausea, inflammation, epilepsy, high blood pressure, and depression.

THC-8 is another type of cannabinoid responsible for the "high" feeling. Although it is often found in very low concentrations, and differs in structure, compared to THC-9, both are commonly referred to as THC.

Cannabidiol (CBD) is a chemical present in virtually all types of cannabis. One cannabis plant may have a miniscule amount of CBD, while another has a cannabinoid composition of ninety-five percent CBD.

CBD is a sedative, possessing less psychoactive properties than THC. It even counteracts the THC, delaying the effects of a 'high' feeling altogether.

Because CBD has less psychoactive properties and reacts with the body differently than THC, it is popular among patients seeking alternative treatments without the traditional side effects of consuming or smoking medical cannabis. It is a neuro-protective antioxidant, protecting cells from damage and degeneration. Studies show the compound relieves several symptoms, including: body convulsing, seizures, inflammation, anxiety, and nausea. In November 2007, it was reported that CBD inhibits the growth of cancer cells in human breast cancer. Other research shows CBD as an effective antipsychotic, used in the treatment of schizophrenia. Finally, it is the first non-toxic exogenous agent that can lead to down-regulation of tumor aggressiveness.

Cannabinol (CBN) is produced when THC oxidizes or degrades. Only very small amounts of CBN exist in fresh bud. When cannabis is stored and cured, the THC conversion occurs and, CBN levels rise. A mildly psychoactive degradation of THC, CBN is used as an anti-epileptic, and to lower intra-ocular pressure. High levels of CBN can make the user feel disoriented and groggy, often known as 'stupefied.'





Tetrahydrocannabivarin (THCV, THV), also known as tetrahydrocannabivarol, is structurally different from the other chemicals, and has a shorter, three-carbon propyl, that replaces the five-carbon pentyl chain. This compound is what contributes to the fragrance of cannabis. With warmer temperatures, the smell becomes more pungent. Plants with this compound originated in parts of Africa and Asia – known to produce more potent plants.

THCV is a non-psychoactive cannabinoid found, naturally, in Cannabis sativa. It is an analogue of THC, with the side chain shortened by two CH₂ groups. THCV can be used as a marker compound to differentiate between the consumption of hemp products and synthetic THC (e.g., Marinol). Large quantities of the THCV chemical are found in subspecies sativa cannabis strains. Some varieties that produce propyl cannabinoids in significant amounts – over five percent of total cannabinoids – have been found in plants from South Africa, Nigeria, Afghanistan, India, Pakistan, and Nepal, with THCV as high as 53.69% of the total cannabinoids per plant.

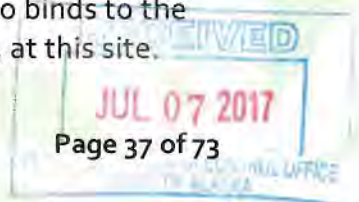
These varieties, also, have moderate to high levels of both THC and CBD and, therefore, a complex cannabinoid chemistry, representing some of the world's most exotic strains. THCV can operate as a CB₁ receptor antagonist, essentially serving to block the effects of THC.

In 2007 GW Pharmaceuticals, in a clinical trial, announced that THCV is safe in humans. Thus, THCV – as a potential cannabinoid treatment for Type 2 Diabetes and related metabolic disorders – will be developed, like the CB₁ receptor antagonist Rimonabant. Cannabichromene (CBC) may compose up to twenty percent of the cannabinoids found within cannabis. CBC promotes the effects of THC, and has sedative and analgesic (pain-killing) effects. Evidence suggests that CBC may play a role in the anti-inflammatory and anti-viral effects of medical cannabis and, also, may contribute to the overall analgesic effects of the medicine. Although a potential treatment for several symptoms, more research into the compound is needed before any definite medical effects can be verified.

Cannabigerol (CBG) is the biogenetic precursor to all other cannabinoids. It has sedative effects and anti-microbial properties. Studies report it relieves intraocular pressure, which may benefit the treatment of glaucoma.

CBG is a non-psychoactive cannabinoid found in the cannabis genus of plants. It has a higher concentration in hemp than other varieties of cannabis with high THC content.

Furthermore, CBG acts as a high affinity α 2-adrenergic receptor agonist, moderate affinity 5-HT_{1A} receptor antagonist, and low affinity CB₁ receptor antagonist. It also binds to the CB₂ receptor, but it is unknown whether it acts as an agonist, or antagonist, at this site.





Cannabis has been a part of human history for millennia. Until the early 20th century it was used as medicine and a spiritual guide in cultures all over the planet. In the early 1900s it was possible to purchase cannabis tincture at pharmacies, but soon the US federal government would launch a crusade to prohibit this most intriguing plant.

For the last 80 years or so, the major drivers of medical research, pharmaceutical companies, have focused on profitable synthetic drugs and little research has been done on the chemistry and therapeutic applications of cannabis. With medical Cannabis sweeping the nation and states like Colorado and Washington, there is major national interest forming.

When television personalities like Dr. Oz and Sanjay Gupta are talking about it, it is clear that a wave of change is swelling. Cannabis is much more than a plant; it is a gift to humanity with complex scientific secrets. The goal of this course is to help you understand the basics of cannabis chemistry and establish an educational foundation for this fascinating topic.

If you were to walk down the street and ask people what chemicals they associate with Cannabis, the overwhelming majority would say THC (and maybe CBD if they saw Dr. Gupta on CNN). While cannabinoids like THC and CBD are well known and often thought of as the active ingredients in cannabis, there are a huge number of other chemicals present in the plant.

In order to fully understand the medical applications and produce quality concentrates or Cannabis infused products, a basic understanding of the science is critical. This course will focus on the basics, with several subsequent courses that will go into greater detail. In addition to the better-known cannabinoids THC and CBD, there are dozens of other related cannabinoids found in the plant. THCA is the natural product version of THC and understanding the chemistry of these two compounds is of utmost importance. Compounds such as CBC and CBG are chemical precursors in the plant biosynthesis of THC and have been shown to have interesting medical properties. CBN is a degradation product of THC that has unique physiological effects. There is also an entire class of compounds called terpenoids that are chemical building blocks in the synthesis of cannabinoids. The medical properties of terpenoids are not as well known, but there are certainly some interesting remedies waiting to be discovered in this broad class of chemical compounds.

Cannabinoids and terpenoids are made up of simple chemical building blocks called terpenes. Terpenes are volatile, small molecules that give cannabis much of its flavor and aroma. They also have unique medical properties and are present in many other plants. Terpenes can be found in pine trees, citrus fruit, and flowers such as lavender and so on.





There is a growing industry across the globe that is focused on using essential oils as therapy for a variety of ailments, so retaining terpenes in concentrates is important for medical reasons. It is also important to understand terpene chemistry as it greatly impacts the texture and flavor of cannabis concentrates.

In addition to the ever-intriguing cannabinoids, terpenoids and terpenes, cannabis also contains a number of other ubiquitous chemical compounds found in many other living organisms. Cannabis contains proteins and enzymes, starches and carbohydrates, waxes and other oils as well as chlorophyll and other common plant chemicals. While these are not psychoactive and have minimal medical value, it is important to consider these components of cannabis as they can greatly affect the color, flavor and texture of concentrates and infused products.

Cannabinoids are found throughout the entire plant at all stages of growth, from seedlings to harvested flowers. The flowers of the cannabis plant are by far the most productive component in terms of THC and CBD, along with other cannabinoids. However, the stems and leaves also contain a relatively small amount of cannabinoids.

Cannabis flowers typically contain 10-30% THC by weight, while leaves and stems typically contain 1-5% THC. Each strain of cannabis has a specific cannabinoid profile with THC, CBD and others present in specific ratios. While the percent of cannabinoid present in the various parts of the plant will vary, the profile remains pretty much the same for a given strain. Because of recent reports of the medical properties of CBD, there has been significant interest breeding strains with a high CBD content. Hemp is also a significant source of CBD and other cannabinoids, but is subject to different federal and local regulations.

Because THC is the primary psychoactive ingredient in cannabis, it is the most interesting cannabinoid. A basic understanding of how THC is made in the plant is essential for anyone who wants to work with cannabis. As mentioned previously, THCA is the natural product formed biosynthetically by cannabis. Unlike THC, THCA is not psychoactive when consumed.

During the curing process, THCA in flowers is converted to THC through a process called decarboxylation. This process is also referred to as conversion, activation or decarbing. During decarboxylation, the THCA undergoes a chemical change where it gives off carbon dioxide gas to form THC. This conversion also takes place when the flowers are heated as they are smoked or vaporized, so even flowers that are not fully decarboxylated will be psychoactive.





For edibles and other products that will not be heated prior to ingestion, it is important to know how much THC and THCA are present so that the proper dose can be formulated. Complete conversion of THCA to THC is simple and can be achieved by heating above 210 °F for extended periods of time.

The plant material can be activated prior to extraction, or the concentrate itself can be decarbed to ensure that all THCA is converted to THC for infused products. The decarboxylation process will be discussed in a subsequent laboratory course.

Cannabinoids, terpenoids and terpenes are all hydrophobic chemical compounds, meaning they are not very soluble in water but dissolve easily in oils and organic solvents. For this reason, solvents like butane or alcohol are popular methods of extracting cannabis.

It is possible to use water to make bubble hash, but that is a physical separation and not a true extraction where the THC and other plant oils are dissolved in a solvent. The choice of extraction solvent can greatly impact the type and quality of concentrate that will be produced. We will delve into details of the various solvents for cannabis extraction in a later course, for now it is important to understand the basic concept of “like dissolves like.” Compared to terpenes, cannabinoids have relatively high boiling points. They boil above 350 °F while many terpenes boil at less than 200 °F. This difference in boiling point can be used to separate components by distillation in some applications. It is also important to keep these numbers in mind while purging or decarbing because terpenes may be lost in the process and subsequently impact the flavor, texture and physiological characteristic of a concentrate or infused product. THCA and CBD are both solids in their pure form, while THC is a thick oil. Terpenes tend to be thin liquids, although some are crystalline solids at room temperature.

The cannabinoids do not only differ in physical and chemical properties as we have just seen, but they also have varying effects in the human body when ingested. You know that THCA, present in fresh plant material, is not psychoactive and must be heated to convert to THC before consumption to induce the desired effects. CBD is not considered to be psychoactive, and is actually a cannabinoid receptor antagonist; which means that it counters the effects of THC in the brain.

However, CBD is claimed to help with pain, inflammation, seizures, mental illness and many other ailments, so there is much demand for it, even though it does not induce a high. CBN is a degradation product of THC and is known to cause drowsiness when ingested. Other, lesser-known cannabinoids like CBC and CBG have not been studied as well. As the science around cannabis advances, there will be more and more clinical studies to determine how natural and synthetic cannabinoids affect our bodies and minds.





You should now have a basic understanding of the broad classes of chemicals that are found in cannabis, their physical and chemical properties and how they affect users. Subsequent courses will explore the chemistry of this awesome plant in greater depth and will cover topics such as extraction, product formulation, potency analysis and more. Accompanying lab courses will provide you with hands on experience in making your own cannabis concentrates.

Effects of Cannabinoids

Regardless of purpose, cannabis has immediate, short-term effects when used. When smoked, the short-term effects of cannabis manifest within seconds and are fully apparent within a few minutes, typically lasting for 1–3 hours, varying by the person and the strain of cannabis. After oral ingestion of cannabis, the onset of effect is delayed relative to smoking, taking 30 minutes to 2 hours, but the duration is prolonged due to continued slow absorption. The duration of noticeable effects has been observed to diminish due to prolonged, repeated use and the development of a tolerance to cannabinoids.

Psychoactive effects

The psychoactive effects of cannabis, known as a "high", are subjective and can vary based on the person and the method of use. When THC enters the blood stream and reaches the brain, it binds to cannabinoid receptors. The endogenous ligand of these receptors is anandamide, the effects of which THC emulates. This agonism of the cannabinoid receptors results in changes in the levels of various neurotransmitters, especially dopamine and norepinephrine; neurotransmitters which are closely associated with the acute effects of cannabis ingestion, such as euphoria and anxiety. Some effects may include a general alteration of conscious perception, euphoria, feelings of well-being, relaxation or stress reduction, increased appreciation of humor, music (especially discerning its various components/instruments) or the arts, joviality, metacognition and introspection, enhanced recollection (episodic memory), increased sensuality, increased awareness of sensation, increased libido, and creativity.

Abstract or philosophical thinking, disruption of linear memory and paranoia or anxiety are also typical. Anxiety is the most commonly reported side effect of smoking marijuana. Between 20 and 30 percent of recreational users experience intense anxiety and/or panic attacks after smoking cannabis, however, some report anxiety only after not smoking cannabis for a prolonged period of time. Inexperience and use in an unfamiliar environment are major contributing factors to this anxiety. Cannabidiol (CBD), another cannabinoid found in cannabis in varying amounts, has been shown to ameliorate the adverse effects of THC, including anxiety, that some consumers experience. Cannabis also produces many subjective and highly tangible effects, such as greater enjoyment of food taste and aroma, an enhanced enjoyment of music and comedy, and marked distortions in the perception of time and space (where





experiencing a "rush" of ideas from the bank of long-term memory can create the subjective impression of long elapsed time, while a clock reveals that only a short time has passed). At higher doses, effects can include altered body image, auditory and/or visual illusions, pseudo-hallucinatory, and ataxia from selective impairment of polysynaptic reflexes. In some cases, cannabis can lead to dissociative states such as depersonalization and derealization.

Any episode of acute psychosis that accompanies cannabis use usually abates after 6 hours, but in rare instances heavy users may find the symptoms continuing for many days. If the episode is accompanied by aggression or sedation, physical restraint may be necessary. While many psychoactive drugs clearly fall into the category of either stimulant, depressant, or hallucinogen, cannabis exhibits a mix of all properties, perhaps leaning the most towards hallucinogenic or psychedelic properties, though with other effects quite pronounced as well. THC is typically considered the primary active component of the cannabis plant; various scientific studies have suggested that certain other cannabinoids like CBD may also play a significant role in its psychoactive effects.

Somatic effects

Some of the short-term physical effects of cannabis use include increased heart rate, dry mouth, reddening of the eyes (congestion of the conjunctival blood vessels), a reduction in intraocular pressure, muscle relaxation and a sensation of cold or hot hands and feet.

Electroencephalography has shown somewhat more persistent alpha waves of slightly lower frequency than usual. Cannabinoids produce a "marked depression of motor activity" via activation of neuronal cannabinoid receptors belonging to the CB₁ subtype.

Duration

Inhaled

Peak levels of cannabis-associated intoxication occur approximately 30 minutes after smoking and last for several hours. The total short-term duration of cannabis uses when smoked is based on the potency, method of smoking, and how much is smoked. Peak levels of intoxication typically last several hours.

Ingested

When taken orally (in the form of capsules, food or drink), the psychoactive effects take longer to manifest and generally last longer, typically lasting for 4–10 hours after consumption. Very high doses may last even longer.

Neurological effects

The areas of the brain where cannabinoid receptors are most prevalently located are consistent with the behavioral effects produced by cannabinoids. Brain regions in which cannabinoid receptors are very abundant are the basal ganglia, associated with movement





inexperience and factors associated with youth relating to risk taking, delinquency and motivation. These demographic and psychosocial variables may relate to both drug use and accident risk, thereby presenting an artificial relationship between use of drugs and accident involvement. Other studies show similar results, with laboratory studies examining the effects of cannabis on skills utilized while driving showing impairments in tracking, attention, reaction time, short-term memory, hand-eye coordination, vigilance, time and distance perception, and decision making and concentration. Another review concluded that "the acute effect of moderate or higher doses of cannabis impairs the skills related to safe driving and injury risk", specifically "attention, tracking and psychomotor skills". Some studies conclude that there is evidence of dose-dependent impairments in cannabis-affected drivers' ability to control a vehicle in the areas of steering, headway control, speed variability, car following, reaction time and lane positioning. The researchers note that "even in those who learn to compensate for a drug's impairing effects, substantial impairment in performance can still be observed under conditions of general task performance (i.e. when no contingencies are present to maintain compensated performance)." An extensive 2013 review of 66 studies regarding crash risk and drug use found that cannabis was associated with minor, but not statistically significant increased odds of injury or fatal accident. The estimated fatal crash odds for cannabis (1.26) were lower than: opiates (1.68), antianxiety medications (2.30), zopiclone (sleep medicine) (2.60), cocaine (2.96), and amphetamines (5.17). The estimated injury odds for cannabis (1.10) were lower than: antihistamines (1.12), penicillin (1.12), antianxiety meds (1.17), antidepressants (1.35), antiasthmatics (1.31), zopiclone (sleep medicine) (1.42), cocaine (1.66), and opiates (1.91). The study concluded: "By and large, the increase in the risk of accident involvement associated with the use of drugs must be regarded as modest... Compared to the huge increase in accident risk associated with alcohol, as well as the high accident rate among young drivers, the increases in risk associated with the use of drugs are surprisingly small." A report from the University of Colorado, Montana State University, and the University of Oregon found that on average, states that have legalized medical cannabis had a decrease in traffic-related fatalities by 8-11%. The researchers hypothesized "it's just safer to drive under the influence of marijuana than it is drunk.... Drunk drivers take more risk; they tend to go faster. They don't realize how impaired they are. People who are under the influence of marijuana drive slower, they don't take as many risks". Another consideration, they added, was the fact that users of marijuana tend not to go out as much. In the largest and most precisely controlled study of its kind carried out by the U.S. Department of Transportation's National Highway Traffic Safety Administration to research the risks of cannabis and driving, it was found that other "studies that measure the presence of THC in the drivers' blood or oral fluid, rather than relying on self-report tend to have much lower (or no) elevated crash risk estimates. Likewise, better controlled studies have found lower (or no) elevated crash risk estimates". The study found that "after adjusting for age, gender, race and alcohol use, drivers





who tested positive for marijuana were no more likely to crash than those who had not used any drugs or alcohol prior to driving". The study however cautions that " these results do not indicate that drug use by drivers is risk-free."

Cardiovascular effects

Short-term (one to two hours) effects on the cardiovascular system can include increased heart rate, dilation of blood vessels, and fluctuations in blood pressure. There are medical reports of occasional infarction, stroke and other cardiovascular side effects. Marijuana's cardiovascular effects are not associated with serious health problems for most young, healthy users.

Researchers reported in the International Journal of Cardiology, "Marijuana use by older people, particularly those with some degree of coronary artery or cerebrovascular disease, poses greater risks due to the resulting increase in catecholamine, cardiac workload, and carboxyhemoglobin levels, and concurrent episodes of profound postural hypotension. Indeed, marijuana may be a much more common cause of myocardial infarction than is generally recognized. In day-to-day practice, a history of marijuana use is often not sought by many practitioners, and even when sought, the patient's response is not always truthful". A 2013 analysis of 3,886 myocardial infarction survivors over an 18-year period showed "no statistically significant association between marijuana use and mortality".

A 2008 study by the National Institutes of Health Biomedical Research Centre in Baltimore found that heavy, chronic smoking of marijuana (138 joints per week) changed blood proteins associated with heart disease and stroke. A 2000 study by researchers at Boston's Beth Israel Deaconess Medical Center, Massachusetts General Hospital and Harvard School of Public Health found that a middle-age person's risk of heart attack rises nearly fivefold in the first hour after smoking marijuana, "roughly the same risk seen within an hour of sexual activity". Cannabis arteritis is a very rare peripheral vascular disease similar to Buerger's disease. There were about 50 confirmed cases from 1960 to 2008, all of which occurred in Europe.

Combination with other drugs A confounding factor in cannabis research is the prevalent usage of other recreational drugs, especially alcohol and nicotine. Such complications demonstrate the need for studies on cannabis that have stronger controls, and investigations into alleged symptoms of cannabis use that may also be caused by tobacco. Some critics question whether agencies doing the research make an honest effort to present an accurate, unbiased summary of the evidence, or whether they "cherry-pick" their data to please funding sources which may include the tobacco industry or governments dependent on cigarette tax revenue; others caution that the raw data, and not the final conclusions, are what should be examined. The Australian National Household Survey of 2001 showed that cannabis in Australia is rarely used without other drugs. 95% of cannabis users also drank alcohol; 26% took amphetamines; 19% took ecstasy and only 2.7% reported not having used any other drug with cannabis. While





research has been undertaken on the combined effects of alcohol and cannabis on performing certain tasks, little research has been conducted on the reasons why this combination is so popular. Evidence from a controlled experimental study undertaken by Lukas and Orozco suggests that alcohol causes THC to be absorbed more rapidly into the blood plasma of the user. Data from the Australian National Survey of Mental Health and Wellbeing found that three-quarters of recent cannabis users reported using alcohol when cannabis was not available. Memory and learning Studies on cannabis and memory are often hindered by small sample sizes, confounding drug use, and other factors. The strongest evidence regarding cannabis and memory focuses on its temporary negative effects on short-term and working memory. In a 2001 study looking at neuropsychological performance in long-term cannabis users, researchers found "some cognitive deficits appear detectable at least 7 days after heavy cannabis use but appear reversible and related to recent cannabis exposure rather than irreversible and related to cumulative lifetime use". On his studies regarding cannabis use, lead researcher and Harvard professor Harrison Pope said he found marijuana is not dangerous over the long term, but there are short-term effects. From neuropsychological tests, Pope found that chronic cannabis users showed difficulties, with verbal memory in particular, for "at least a week or two" after they stopped smoking. Within 28 days, memory problems vanished and the subjects "were no longer distinguishable from the comparison group". Researchers from the University of California, San Diego School of Medicine failed to show substantial, systemic neurological effects from long-term recreational use of cannabis. Their findings were published in the July 2003 issue of the Journal of the International Neuropsychological Society. The research team, headed by Dr Igor Grant, found that cannabis use did affect perception, but did not cause permanent brain damage. Researchers looked at data from 15 previously published controlled studies involving 704 long-term cannabis users and 484 nonusers. The results showed long-term cannabis use was only marginally harmful on the memory and learning. Other functions such as reaction time, attention, language, reasoning ability, perceptual and motor skills were unaffected. The observed effects on memory and learning, they said, showed long-term cannabis use caused "selective memory defects", but that the impact was "of a very small magnitude". A study at Johns Hopkins University School of Medicine showed that very heavy use of marijuana is associated with decrements in neurocognitive performance even after 28 days of abstinence.

Appetite

The feeling of increased appetite following the use of cannabis has been documented for hundreds of years, and is known colloquially as "the munchies" in the English-speaking world. Clinical studies and survey data have found that cannabis increases food enjoyment and interest in food. Scientists have claimed to be able to explain what causes the increase in appetite, concluding that "endocannabinoids in the hypothalamus activate cannabinoid





receptors that are responsible for maintaining food intake". Rarely, chronic users experience a severe vomiting disorder, cannabinoid hyperemesis syndrome, after smoking and find relief by taking hot baths. Endogenous cannabinoids ("endocannabinoids") were discovered in cow's milk and soft cheeses. Endocannabinoids were also found in human breast milk. It is widely accepted that the neonatal survival of many species "is largely dependent upon their suckling behavior, or appetite for breast milk" and recent research has identified the endogenous cannabinoid system to be the first neural system to display complete control over milk ingestion and neonatal survival. It is possible that "cannabinoid receptors in our body interact with the cannabinoids in milk to stimulate a suckling response in newborns to prevent growth failure".

Risks and Benefits for Methods of Delivery

- Inhalation
- Oral
- Transdermal

Notes: Each of these methods can employ various techniques that are appropriate for different occasions.

Due to the psychoactive effects of THC many ways of ingesting cannabis have traditionally been to accentuate, prolong, or induce quickly the psychoactive effects. Oral Ingestion is the most effective for diseases discussed in this presentation with the exception of colon cancer.

Inhalation

- Smoking and Vaporization
- Currently the most common method of consumption
- The majority of cannabinoids enter the body through the lungs where they are passed directly into the bloodstream
- Overall has the shortest time effect of all delivery methods
- Least effective for treating more serious illnesses

Notes: In a study done by Huestis and colleagues on cannabinoid pharmacokinetics, subjects who consumed cannabis via inhalation reported feeling the effects of the medication within minutes, with peak effects around the hour mark and total duration of effects around two hours. It is important to point out that there can be significant variation in these times due to factors such as cannabinoid content, depth and length of inhalation (a.k.a. smoking style), and previous cannabis exposure (tolerance)".

Inhalation Methods - Smoking

- Joints - Rolled marijuana cigarettes
- Blunts - Marijuana rolled in the leaf wrap of a hollowed out cigar





- Proper dosage for young epileptic children is two doses a day of 3-4 milligrams of oil per pound of body weight.

Transdermal Delivery

- Cannabinoids combined with a penetrating topical cream can enter the skin and body tissues and allow for direct application to affected areas (e.g. allergic skin reactions, post-herpes neuralgia, muscle strain, inflammation, swelling, etc.).
- Fast Acting, Localized effect.
- No psychoactive effect.

Notes: Cannabis-infused lotions work because of the body's own endogenous cannabinoid system, which forms the biological basis for marijuana's therapeutic effect. When you apply an infused lotion or salve to help relieve neuropathic pain, itchiness and other ailments, the cannabinoids in the topical bind to CB2 receptors in your skin, which absorb them in a way that helps cells regenerate, allowing wounds to heal faster and easing painful chronic conditions like eczema and psoriasis. Cannabis-infused topicals cover a pretty wide myriad of conditions. Depending on the carrier oil used in formulating the body-care product, the cannabinoids penetrate deeply enough into the skin to relieve muscle pain and arthritis inflammation, but not so deep that THC enters the bloodstream or central nervous system.

Additional anecdotal reports on topical treatment efficacy include:

- Certain types of dermatitis (including atopic) and psoriasis.
- Balm for lips, fever blisters, herpes.
- Superficial wounds, cuts, acne pimples, furuncles, corns, certain nail fungus.
- Rheumatism and arthritic pains (up to the 2nd degree of arthritis).
- Torticollis, back pains, muscular pains and cramps, sprains and other contusions.
- Phlebitis, venous ulcerations.
- Hemorrhoids.
- Menstruation pains.
- Cold and sore throat, bronchitis.
- Asthmatic problems with breathing.
- Chronic inflammation of larynx (application in the form of a Priessnitz compress).
- Migraine, head pains, tension headaches.
- Pharmaceutical Cannabis or Cannabinoids.





Infused Products

These are products such as foods (or “edibles”) and tinctures that are infused with concentrated marijuana oils. Edibles are the most popular form of infused product, and they are also the most likely to result in over-consumption.

Inhaling vs. Ingesting Marijuana

It is important to understand there are two very significant differences between inhaling and ingesting marijuana:

Because of the way in which the body processes marijuana, ingesting it typically produces much stronger and longer-lasting effects: Whereas the effects of inhaling marijuana are immediate and peak within 10-15 minutes, ingesting marijuana can take up to two hours to take effect and can peak for a couple hours after that. If you decide to consume marijuana edibles. Start Low: Ingesting too much marijuana can be a very unpleasant experience, so be careful. Just about anyone who has over-consumed marijuana edibles will tell you that not eating enough is far preferable to eating too much. First, always read the product’s packaging. State law requires that it indicate how many servings and how many total milligrams of THC are in the product. (THC is the psychoactive component of marijuana.). Under Alaska law, a dose, or “serving” is defined as “up to 5 milligrams of THC, and packages of infused products may contain no more than ten servings. Go Slow: It can take as long as two hours to experience the effects of marijuana-infused products, so be patient. One of the easiest ways to have a bad experience with marijuana edibles is to go back for a second serving without giving the first serving enough time to take effect. If it’s your first time, start off with 5 milligrams of THC and don’t use any more for the rest of the day or evening. If it doesn’t produce the desired effect, try 10 milligrams the next time. Don’t jump up to 20 or more! It might not seem like a big difference between 10 and 20 milligrams, but keep in mind that 20 milligrams are four times the amount recommended for a first-time consumer. According to the First Time 5 campaign, rich and dense products like brownies or chocolate take longer to digest, which means it will take longer before you feel the effects. Products like infused drinks and tinctures are absorbed into the body much more quickly, so you will likely experience the effects sooner.

What will happen — and what should I do — if I consume too much marijuana?

Fortunately, marijuana is virtually non-toxic to healthy human cells and organs, so you do not need to worry about dying purely from a marijuana overdose. But that doesn’t mean you shouldn’t worry about overdoing it. Consuming too much marijuana in one sitting can be a very unpleasant experience, and it can happen with any type of marijuana product if you’re not careful. Over-consumption is typically characterized by an increase in heart rate, dryness of the mouth, and/or feelings of paranoia or anxiety. These symptoms are temporary and will usually dissipate within 15 minutes to one hour for smoked or vaporized marijuana flowers, slightly





longer for smoked or vaporized concentrates, and anywhere from 30 minutes to two hours for marijuana edibles and other infused products. If you consume too much marijuana, try to stay calm and remember that the feeling is only temporary. Lay or sit down, close your eyes, and try to relax. If you are with other people, let them know that you have overdone it and want them to keep an eye on you. If your discomfort becomes so intense that you think you need medical attention, ask someone to take you to the emergency room or call 9-1-1. Do NOT try to drive anywhere! Is marijuana harmful to my health? This is a big question to get into here, but it is an important one, and we encourage you to review the wealth of information that's available on this subject. Every objective study on marijuana has concluded that it is far less harmful than alcohol to the consumer and to society. It is less addictive, less damaging to the body, and less likely to contribute to violent and reckless behavior. The Marijuana Policy Project website has some good information about the relative harms of marijuana and alcohol, as well as broader information about its health effects. You can also learn quite a bit about marijuana by reviewing the National Academy of Science Institute of Medicine's comprehensive report, "Marijuana and Medicine: Assessing the Science Base." Like virtually any other substance or behavior, consuming marijuana can pose some problems for some people. First and foremost, marijuana is not for children or teenagers. While we know it does not pose nearly as much harm as alcohol and many other substances, there remain questions about its potential impact on the developing brain. Also, adolescents are at a stage in their lives during which marijuana could interfere with their personal and academic growth. Young people should be provided with objective, evidence-based information about marijuana and encouraged to wait until they turn 21 if they wish to consume it. Although the addictive properties of marijuana are relatively minimal compared to alcohol and other drugs, people who are predisposed to addictive behaviors may want to avoid marijuana because they may be more likely to become dependent on it. People suffering from certain mental health conditions should also avoid using marijuana. There is some evidence — although it is not conclusive — that indicates marijuana could exacerbate symptoms associated with psychosis, depression, or schizophrenia. Pregnant women should avoid consuming marijuana much like they would tobacco or alcohol. If women feel there is a medical need to use marijuana while pregnant, they should consult their physicians before doing so. Because inhaling smoke can irritate the respiratory system, it should be avoided by individuals who suffer from breathing-related conditions, such as chronic obstructive pulmonary disease (COPD). Using marijuana can also produce a temporary increase in heart rate, so people with a history of high blood pressure or heart disease should avoid using it or consult their physicians before doing so.

The effects of consumption of marijuana and marijuana products:

ConsumeResponsibly.Org writes-Firstly, the effects vary from person to person, and they are dependent on the type and amount of marijuana consumed, as well as the method in which it





is consumed. Those who enjoy using marijuana typically find it to be relaxing or mildly euphoric. Some find it makes them more social or outgoing. Those who dislike it often report it makes them feel uncomfortable, tired, or withdrawn. New users often experience different effects than more experienced users. Some novice consumers feel no effect at all the first time they try it. Others — usually those who use a little too much their first time — temporarily experience some unpleasant feelings, such as an increased heart rate or a sense of paranoia.

How to identify a person impaired by consumption of marijuana

Guide to identifying the signs of potential marijuana impairment and three (3) major signs of potential marijuana impairment. Look for these physical changes:

- Bloodshot eyes
- Fast heart rate
- Sleepy, or lethargic motions
- Increased cravings for food or drink

Look for these activity changes:

- Appearing confused and lacking of focus
- Being unusually talkative
- Dropping objects or general clumsiness
- Misjudging time
- Becoming secretive or withdrawn

Observe these types of paraphernalia on or about the person

- Pipes
- Cigarette rolling papers
- Very small bottles of oil
- Eyedroppers

Please note - these signs are not proof of marijuana impairment. In fact, marijuana impairment can be difficult to ascertain, but taken together, these signs may help you identify potential impairment and allow you to respond appropriately.





Section 3: Determining Valid Identification and Preventing Diversion

As licenses are becoming ever easier to forge, fake IDs are growing more common and more accurate. If you're in a position where you must verify someone's age or identity, it's important that you know how to detect fake identification. You should examine the card carefully, identifying relevant safety features, before studying the cardholder.

Using the U-CARD Memory Aid

- **U – Unaltered:** Feel for cuts, bumps, and uneven lamination
- **C – Current:** Check expiration date: expired ID is not valid
- **A – Age:** Birth date must show the person as 21 or older
- **R – Readable:** You must be able to read and understand the ID
- **D – Description:** Compare photo with the person: height, weight, facial structure, etc.



1. Examining the Card



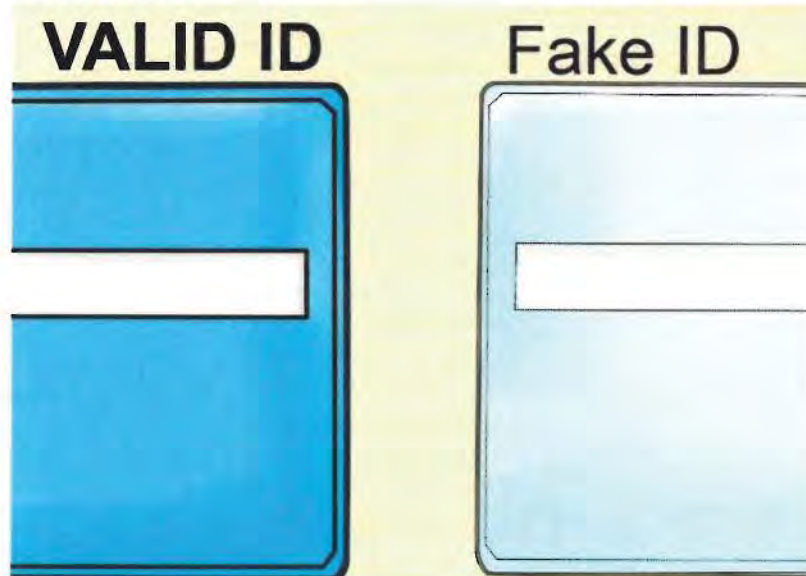
Know what to look for. Each state's IDs are somewhat different. Accordingly, you should learn the security features used on cards in your state and in surrounding states. Fortunately, there is plenty of information available:

- Purchase the ID Checking Guide from the Driver's License Guide Company. It contains updated information on licenses in the U.S. and Canada.
- Pick up any state-published reference. Your state might have published a booklet or handout on authenticating their state IDs. Check with your state's Department of Motor Vehicles.
- There may also be an app you can download to your smart phone that will contain IDs for all 50 states





2. Compare the Identification



Compare the ID to a valid one. If you don't have an ID checking guide, you can compare the ID to one you know is valid—maybe even your own. Check how similar they are. In particular, compare whether the thickness, size, coloring, lettering, and corners are the same.

- A fake ID may be thinner than a legitimate one. In particular, counterfeiters use different paper or laminate than legitimate IDs.





Use A Magnifying Glass



Examine the microprint with a magnifying glass. Almost all states use microprint as a security feature. It looks like a straight line, but when magnified 10 times you can see the words clearly. Use a 10X magnifying glass to check whether the ID has microprint.

- The microprint will be located on different positions, depending on which state's ID you are looking at.





4. Use Ultraviolet Light



Hold the card under ultraviolet light. Depending on your state, certain security features will show up under ultraviolet light. For example, in California, you can see a second, lighter image of the cardholder only under UV light.





5. Feel the Card



Use your hands to see if the card feels normal. Your sense of touch can pick up on many signs of fraud. For example, feel the edges of the ID, which should be smooth and not peeling. Also the card shouldn't be flimsy and bend easily.

- Run a thumb over the picture and check its thickness. On some fake IDs, a picture is pasted over the original one, so the ID is especially thick there.
- Some information may also be tactile. On California licenses, for example, the cardholder's signature is now printed using raised lettering. You can run your thumb across it and feel the lettering.
- On North Carolina licenses, you can feel the date of birth, which is laser engraved.





6. Scan the Barcode



Scan barcode if it is an option. The barcode contains information which should match the information on the front of the card. Most forgers cannot encode the information because it is too expensive. Scan the barcode and see if any information has been encoded and whether it matches the information on the front.

- There's also an app you can use: BarZapp. The app only costs a couple of dollars and can be downloaded onto your smart phone.





7. Tilt the Card



Look at it from different angles. Some cards have security features that are only visible from certain angles. For example, you can check for an image overlay by tilting the card.

- The card might also have the state name that is visible when you tilt the card toward the light. For example, on an Illinois driver's license, the state name shows up in diagonal across the front of the card.





8. Search for Misspellings



Make sure everything is spelled correctly. Search for misspellings on the ID. You can spot a forgery if the ID contains a misspelling, such as using the wrong abbreviation for the state. Any ID with a misspelling is not legitimate.





9. Studying the Cardholder



Look for signs of anxiety. Be suspicious if the cardholder avoids eye contact, is shaking, or otherwise looks nervous. This may be the first time they've tried to use a fake ID and could fear getting caught.

- Other signs of lying include pursing their lips or touching their face as they talk.
- If the person is right-handed, then they will usually look to the right when they tell a lie.





10. Review Physical Description



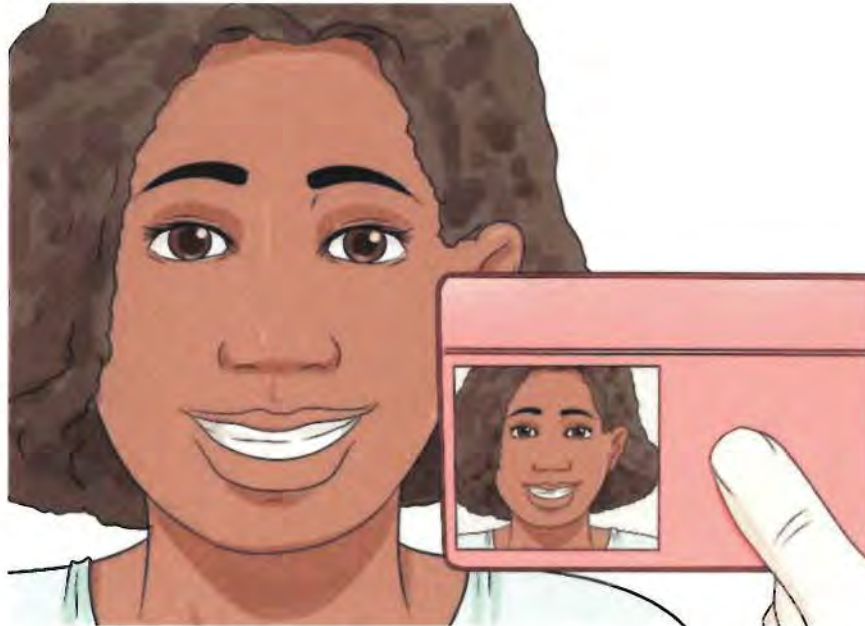
Compare the physical description to the cardholder. A driver's license and other IDs should include a physical description that includes height, age, eye color, and weight. Check that the person handing over the ID matches the description.

- It can be difficult to judge height in the abstract. However, compare the person to your own height. If you're 5'6" and the cardholder is allegedly 5'8", then they should be close to your height.





11. Compare the Picture



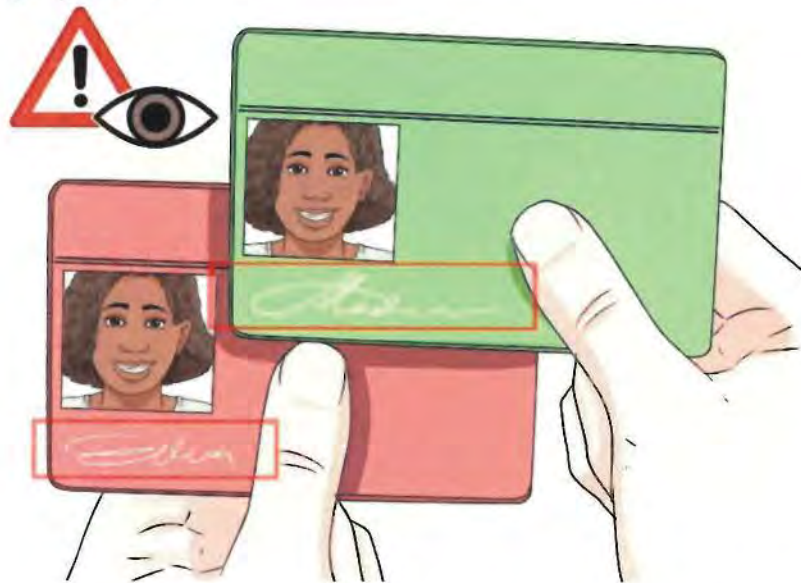
Compare the picture to the person. The ID should also have a picture. Analyze whether the person looks remotely like the person handing you the ID. Although the picture may be a few years old, the person should look generally the same.

- Instead of focusing on someone's hairstyle, look at those features that don't change: nose, ears, eyes, and chin.
- Be suspicious if they look exactly like the picture or are wearing the same clothing. This indicates they made the fake ID recently.





12. Try Comparing Signatures



Compare signatures. If the cardholder is signing for something, compare the signatures. If they don't match, then the ID is probably fake.

- You might suspect someone buying alcohol or cigarettes is using a fake ID. In that situation, ask them for their signature and then compare it.
- Sometimes, people will accidentally sign their real name, so this is a good test





13. Ask Some Questions



Ask the cardholder questions. As you're holding the card, ask the cardholder questions about the information that appears on it. For example, you should ask them their date of birth. If they can't remember, then the ID is fake.

- You can also ask them their middle name or year they graduated high school. If they hesitate, then they may be using a fake ID.
- If a companion is with the cardholder, quickly ask them the cardholder's name. If they hesitate, they could be lying.





14. Another Identification Form



Ask for a second photo ID. Someone might spend a lot of money to get one fake ID. However, they probably don't have two. Ask to see a second photo ID. If the person can't produce one, then the ID might be fake.





Additional Tips

- Look, don't just glance at ID
- Always have the customer remove the ID from their wallet.
- Feel along the card for:
 - Raised edges around photo
 - Bumpy surfaces
 - Irregular lamination
 - Cuts, slits, or pin holes
 - Peeling lamination or uneven corners
 - Thickness & quality of ID
 - Look carefully at the most commonly altered areas:
 - Expiration date
 - Birth date
 - "Minor Until" date
 - Photo
 - Have a flashlight handy and hold it behind the ID to look for cuts, punch outs, or pin holes.
 - Ask for a second piece of ID if you have any doubts about the first. People with false ID rarely carry backup ID

Remember to consider whether the type of ID is sufficient. Birth certificates, for example, might establish age, but don't include pictures. College ID's often include pictures, but might not have birthdates, or other important information.

When in doubt, remember that: A licensed marijuana business shall refuse to sell marijuana or a marijuana product to any person who does not produce a form of valid identification showing that person is 21 years of age or older.

A valid form of identification includes: an unexpired, unaltered passport; an unexpired, unaltered driver's license; instruction permit, or identification card of any state or territory of the United States, the District of Columbia, or a province of Canada; an identification card issued by a federal or state agency authorized to issue a driver's license or identification card.

No other forms of ID can establish age.





Reducing Diversion

"The first job of prevention is to create a culture in which people do not want to steal, where they do not believe they can get away with shrink-causing activity, and in which they know that shrink will not be tolerated." -Larry Miller, Founder of TRAX Software.

Diversion Programs

Without a doubt, those who are most successful in reducing inventory shrink and preventing loss are those with a consistent, well-structured program. Going together with being focused is being consistent with program elements. Whether it is pertaining to how your location investigates loss, scoring audits, or conducting training with associates, management must make sure it is consistent.

There are 6 facets to an effective diversion reduction program.

1. Prevention
 - a. Dedicated Loss Prevention Resources and Creation and Implementation of Standard Loss Prevention Procedures.
2. Awareness
 - a. Implementation of a program with a variety of delivery mediums with consistent and repetitive messaging.
 - i. Materials should be written for all levels of the workforce not only for management or specific roles within the business
 - ii. Focused on increased education and awareness of loss prevention concepts
3. Compliance
 - a. Following State law and Standard Operating Procedures
4. Detection
 - a. Use available technologies and create procedures to help detect possible losses involving thefts and errors
5. Investigation
 - a. Identify compliance issues
 - b. Design and use effective audits to reduce exposure
6. Resolution
 - a. For those investigations involving theft, the resolution can be the identification of culprits involved, admissions of theft and the establishment of restitution and civil recovery processes.





- b. For losses identified as training or compliance, resolution can be the review and alterations of existing policies and procedures, and/or the establishment of new policies.

Strategies for Reducing Diversion

For a program to be consistent it must start with some key elements; documented policies and procedures, a well-developed audit and audit schedule (for all locations) and an understanding of how the company handles theft investigations. Without a consistent program and key elements, associates will not understand your expectations and be able to help prevent loss in their locations. The 2011 Global Retail Theft Barometer reported in its latest survey results that those retailers who conducted a *minimum* of two (2) loss prevention audits reported significantly less diversion.

Visibility plays a large role in preventing loss. Conducting audits, holding training meetings, stopping into stores when unexpectedly are all things that can be done to increase LP presence.

Experts agree that the best defense is a watchful eye. Be aware of these strategies as an employee:

- Use the inventory-tracking system. State regulations require the tracking of all sales of marijuana.
- Check the z-tape. Check those z-tape numbers. If yesterday's z-tape was number 24 and today's is 27, what happened to 25 and 26?
- Provide all employees with training on theft-prevention, both shoplifting and employee theft.
- Encourage anonymous tips. Publish a phone number employee can call to leave an anonymous message if they suspect a co-worker of stealing product or cash.
- Watch for employees with calculators and receipt books. Many retailers say that a sure sign of a problem is an employee who has a calculator next to the cash drawer, or a separate receipt book tucked into a drawer or pocket.
- Watch the "no-sales." Many retail owners know that the leading indicator of theft is a single piece of data: the "no sale" number. If a typical day's no-sale tally is four, but every time an employee works the tally is 10, there may be a problem.





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10. The duration of the effects of cannabis when smoked is based on the potency, method of smoking, and how much is smoked. **True/False**
11. Which method has been found the most effective for diseases discussed in this module apart from colon cancer? Smoking/Vaporization/**Oral Delivery**/Transdermal
12. Which method has been found effective for localized muscle pain? Smoking/Vaporization/**Oral Delivery/Transdermal**
13. You can drive after you've eaten an edible. **True/False**
14. Wait at least _____ hours after eating or drinking less than 18 milligrams of THC before driving, biking, or performing other safety-sensitive activities. **1/3/5/8**
15. Synthetic marijuana substances like spice are the same as marijuana? **True/False**
16. THC is recommended for pregnant and breastfeeding mothers. **True/False**

Section 3:

1. Spelling errors are often found on Valid Identification **True/False**
2. When inspecting identification, you should ask the customer to remove their ID from their wallet. **True/False**
3. You should check an ID under a _____ light. Infrared/**Ultraviolet**/Flash
4. A leading indicator of diversion is a single piece of data: the _____. Z-tape/**No Sale Number/POS/Clock-in**
5. The most commonly altered areas on a ID are? Expiration date/Birth date/ "Minor Until" date/Photo /**All of the Above**
6. A licensed marijuana business shall refuse to sell marijuana or a marijuana product to any person who does not produce a form of valid identification showing that person is _____ or older. **16/18/21/25**
7. Which form of ID IS valid to purchase marijuana? Expired Passport/School Identification/Credit Card/Library Card/**Driver's License**
8. If you have questions about someone's ID, you should _____ **Ask for a second form of ID/Call the Police/Ask your manager/Let them in**
9. When checking ID remember to use the _____ method. U-CHECK/**U-CARD/U-CARE/U-Can't**
10. Many IDs have security features such as raised lettering or holograms to prevent forgery. **True/False**
11. The fine for providing a false ID is _____ **\$100/\$200/\$300/\$400**
12. Peeling Lamination on an Identification likely means _____ The ID has expired/**The ID has been altered**/The ID is new.

