

# USER GUIDE



SCAN TO ACCESS YOUR  
INSTRUCTOR MATERIALS



## THC

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# INTRODUCTION

# INTRODUCTION

## Understanding Cannabis: THC, CBD, and Impairment Effects

Cannabis is a green, brown, or gray mixture of dried, shredded leaves, stems, seeds, and flowers of the *Cannabis sativa* and *Cannabis indica*. Cannabis can be consumed in different ways, including smoking, inhaling vapors, or eating. Some varieties of Cannabis contain the mind-altering (psychoactive) chemical Delta-9-Tetrahydrocannabinol (THC), plus more than 400 other chemicals. Some types of medical cannabis contain minimal levels of THC and a high percentage of the non-psychoactive chemical cannabidiol (CBD). CBD is a compound in cannabis believed to have medicinal effects, but it does not necessarily make people feel “stoned” or “high” and can counter the psychoactive effects of THC. Medical cannabis users typically seek symptom relief.

Our activities do not apply to the hemp plant. While Hemp plants are the same species as Cannabis plants; Hemp plants contain less than .3% of THC. Recently a category of THC called delta-8 THC has become more widely available. Most delta-8 products are produced synthetically by converting cannabidiol from hemp into the less potent delta-8 THCO. Delta-8 THC (or THCO) can still cause the same impairment as delta-9 THC, as individuals can consume more to create similar effects.

# INTRODUCTION

## Impact of THC Use: Cognitive Effects on Driving and Adolescent Development

Acute THC use has been shown to impair cognitive functions on several levels – from basic motor coordination to more complex executive function tasks, such as the ability to plan, organize, solve problems, make decisions, remember, and control emotions and behavior. Studies have shown that drivers under the influence of THC have decreased car handling performance, increased reaction times, impaired time and distance estimation, unintentional lateral travel movement, and impaired ability to sustain vigilance while driving.

There are other significant cognitive effects from THC use, particularly for adolescents. The adolescent human brain continues to develop decision-making ability, social skills, foresight, and abstract reasoning up until about the age of 25. However, these same domains of executive

function, attention, and social cognition are those most consistently affected by THC use. Young people may be more vulnerable to developing dependence because their brains are still undergoing growth and development. Studies have shown that structural changes in the brains of young THC users can lead to functional impairments, including cognitive and emotional deficits to educational and social underachievement.

*Nhtsa.gov. "Drugs And Human Performance FACT SHEETS - Cannabis/ Marijuana ( D 9 -Tetrahydrocannabinol, THC)". N.p., 2016. Web. 28 Jan. 2016.*

*Gilman, J. M. et al. "Cannabis Use Is Quantitatively Associated With Nucleus Accumbens And Amygdala Abnormalities In Young Adult Recreational Users". Journal of Neuroscience 34.16 (2014): 5529-5538. Web. 28 Jan. 2016.*

<https://csam-asam.org/wp-content/uploads/impactofmarijuanaonchildrena.pdf>

# INTRODUCTION

## Research-Based Approach: Unveiling THC Impairments through Interactive Activities

Through the following activities, participants gain a hands-on understanding of the potential consequences of performing daily functions or driving or working under the influence of THC. Impairments include slower decision-making, loss of short-term memory, distorted processing of visual information, slight alteration of visual perception, and impaired memory and cognitive abilities. By making these consequences tangible and relatable, the activities allow individuals to discuss their personal susceptibility and the potential severity of those consequences in a meaningful way.



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# INTRODUCTION

## Cannabis Legalization: Driving Regulations and Impairment Awareness

Some states have legalized cannabis for medicinal and recreational use. In the states where it is legalized for recreational use, the legal age to purchase, possess and consume cannabis containing THC varies by state. At the time of the development of this material, some states are setting legal limits for the amount of THC that can be in the bloodstream when driving.

There is not yet a standardized formula to predict THC concentration. The Widmark formula is the recognized standard to predict a person's BAC based on gender, weight, and consumption pattern. There is no established formula to predict THC levels based on consumption because cannabis is available in varying potencies of THC.

Medical cannabis typically has less THC than the varieties bred for recreational use. Also affecting THC levels are the

methods of consumption. Cannabis containing THC can be consumed in several ways, including smoking, eating, or ingesting concentrated substances. Each method of consumption can influence when a user will experience the onset of effects. The effects of smoking cannabis containing THC might begin within a few minutes and last two or four hours. When cannabis containing THC is eaten, the onset of effects may be delayed for an hour or more, and the duration of the high can last six hours or more. Even though cannabis may be legal for medicinal or recreational use, it is illegal to operate a motor vehicle while impaired by THC. If law enforcement determines that someone is driving under the influence of any substance, including THC, that person can be arrested for operating a vehicle under the influence.

It is important to convey not to drive under the influence of any substance, including THC, even if it is legal in a person's state.

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# INTRODUCTION

## How the Goggles Model Impairment from THC

The Fatal Vision® THC Goggles are designed to model several impairments associated with THC use, including diminished visual perception, short-term memory loss, and slowed reaction time. To simulate diminished visual perception, the goggles alter a person's ability to perceive certain colors accurately. **It's important to note that THC does not cause a person to lose their color perception.** This feature is only used to demonstrate the effects of impaired visual perception and the potential consequences that can result.

In addition to modeling diminished visual perception, the goggles are also used to model short-term memory loss. By filtering out certain colors that a participant may rely on as visual cues in an activity, the goggles increase their reliance on short-term memory to complete the task. This increased use of short-term memory without the aid of

visual cues makes it more difficult to memorize a sequence of steps, which models the short-term memory loss caused by THC impairment.

The Fatal Vision® THC kits include many activities that require participants to react appropriately to visual cues, just like any vehicle operator must do at traffic lights, pedestrian crosswalks, and other traffic signals and signs. By experiencing impaired visual perception and short-term memory loss, participants can better understand the risks associated with THC use and driving.



## INSTRUCTOR MATERIALS

<https://www.fatalvision.com/thc-instructor-materials/> Note: there is a QR code inside your goggle that will lead you to the materials as well.



# ACTIVITY – BALL TOSS

# BALL TOSS

## Activity Purpose

The purpose of this activity is to demonstrate the effects of THC impairment on motor skills, perception, and decision-making abilities, whether in the workplace, while operating a vehicle, or in daily life. The activity aims to raise awareness about the potential consequences of impaired driving, substance abuse, and workplace safety violations related to THC use. The discussion table on pages 14-16 provide examples and suggestions for the specific topic being addressed with the audience.

## Modeled Impairments

The Fatal Vision® THC Goggles simulate the loss of motor coordination, reaction time, and distorted perception and information processing associated with THC impairment. The goggles provide a realistic experience of the cognitive processes involved in impaired driving, such as difficulty processing visual cues, missed signals, and slowed decision-making. For example, when wearing the goggles, participants may have trouble focusing on a conversation, even when looking directly at the speaker, or may have trouble processing visual information correctly, leading to poor judgment and decision-making. Despite functioning normally in terms of vision and hearing, the mind is not correctly processing the information it receives, leading to impaired performance in various activities.

# BALL TOSS

## Research-Based Approach

Despite the well-known dangers of driving under the influence of THC, many individuals still believe they won't face negative consequences, often due to a cognitive bias called "optimistic bias." However, we can challenge this dangerous belief by demonstrating the real-world effects of THC impairments on our ability to navigate a driving course. By experiencing firsthand the difficulties and potential consequences of driving under the influence of THC, participants can gain a deeper understanding of the importance of safe driving practices and engage in a discussion about the severity of those consequences. This approach promotes awareness and encourages responsible decision-making when it comes to operating a vehicle while under the influence of THC.

## Materials

- Fatal Vision® THC Goggles
- 12 activity balls
- 3 fabric boxes

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity01balltossmjinstructor> or QR code below.



# BALL TOSS

## Activity Steps

1. **Introduce the Activity.** Ask participants to recount or imagine a situation requiring concentration, vigilance, timing, and quick responses
2. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboardballtoss01>  
Extended video option:  
<https://vimeo.com/innocorp/mjwhiteboardballtoss02>
3. **Explain the Activity.** The black balls represent actions that must be taken in an activity. The participant must catch the black balls and put them in the box next to them. The participant must avoid the orange or red balls by sidestepping. Have a spotter behind the participant to collect any stray balls.
4. **Baseline.** Perform the activity the first time unimpaired without the goggles. Shield the balls from the participant's view until tossed. Toss 6-8 balls to the participant one at a time. Afterward, ask the participant how simple the activity was on a scale of 1 to 10. 1=easy, 10=hard.



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5. **Impaired.** Repeat the activity while the participant wears the Fatal Vision® THC Goggles.
- When the participant cannot correctly identify a colored ball, this models the cognitive impairment of not recognizing and responding to sensory input that results from THC use.
6. **Discussion.**



# BALL TOSS

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Introduce the Activity</b>	Think of industry/trade-specific situations and tasks ahead of time that would be relevant to your audience to use as examples.	Be prepared with a traffic situation example where a quick reaction is required to avoid a crash.	Be prepared with an example where a quick reaction is required to respond to a situation. For example, when cooking, an item falls off a table, catching it, or responding to a timer.

# BALL TOSS

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Explain the Activity</b>	<p>The black balls in the activity symbolize timely and accurate actions in the workplace. By catching these balls, participants practice focus and decision-making skills.</p> <p>The red or orange balls represent workplace errors to avoid. They symbolize distractions, productivity slowdowns, and safety violations. By avoiding these balls, participants improve their hazard recognition and workplace safety awareness.</p>	<p>The black balls in the activity represent timely and appropriate actions, like slowing down at a yellow traffic light. This exercise helps participants develop decision-making skills, especially important in driving and other contexts.</p> <p>The red and orange balls represent evasive action to avoid hazards. Participants practice sidestepping these balls to avoid potential dangers like obstacles on the road. This improves their ability to quickly and effectively respond to hazards.</p>	<p>The black balls in the activity represent timely and accurate actions, like following steps or performing tasks correctly. Participants catch these balls to practice focus, decision-making, and error avoidance, enhancing safety and productivity.</p> <p>The red and orange balls symbolize evasive actions to avoid hazards, like moving to the right side of a hallway. Participants sidestep these balls to practice identifying and avoiding dangers, enhancing situational awareness and response skills for safety and crash prevention.</p>

# BALL TOSS

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Substance Abuse</b>
<b>Discussion</b>	<p>How does THC impairment affect:</p> <ul style="list-style-type: none"> <li>• Concentration, evaluation, and decision-making?</li> <li>• Coordination and reaction time?</li> <li>• Promptly following safety protocols?</li> <li>• Disruption of productivity and workplace safety?</li> <li>• Organization policies on impairment?</li> <li>• Importance of sober employees recognizing and reacting appropriately to tasks and responsibilities.</li> </ul>	<p>A sober driver reacts quickly and appropriately to visual information.</p> <ul style="list-style-type: none"> <li>• Factors to monitor for safe driving: speed limits, driving speed, road/weather conditions, pedestrians, traffic signals/signs, approaching traffic, emergency vehicles, road hazards, and other drivers.</li> <li>• List situations requiring quick assessment and reaction some samples might be being cut off by a car, pedestrian stepping into the path, encountering unexpected road conditions like ice or oil slick, and lane configuration changes.</li> <li>• What might be the consequences of missing factors or improper assessment/reaction some samples might be increased risk of accidents, collisions, injury, and property damage.</li> </ul>	<ul style="list-style-type: none"> <li>• What impact of impairments on daily tasks, planning, study, sports, and relationships.</li> <li>• List areas where accurate perception and response are crucial in daily life.</li> <li>• How might impairments impact these areas?</li> </ul>



# ACTIVITY – MAZE

# MAZE

## Activity Purpose

This activity aims to demonstrate the effects of cognitive impairment resulting from THC on problem-solving skills and memory, also known as Executive Function, by measuring the participant's ability to solve a simple maze. The discussion table on pages 22-24 provides examples and suggestions for the specific topic being addressed.

## Modeled Impairments

The activity demonstrates how THC impairment can affect cognitive function, leading to difficulties in solving problems and retaining information. This simulation provides a tangible example of the challenges individuals may experience when trying to navigate tasks requiring Executive Function after using THC.

## Research-Based Approach

Driving under the influence of THC is a significant safety concern, and individuals often underestimate its negative effects due to a cognitive bias known as “optimistic bias.” This activity challenges this belief by demonstrating how simulated THC impairments can affect our cognitive abilities and problem-solving skills. By participating in this simulation and experiencing the difficulties of navigating a maze while under the influence of THC, participants can gain a deeper understanding of the potential consequences of impaired decision-making resulting from THC use. This approach promotes awareness and encourages responsible decision-making when it comes to using THC and performing tasks that require Executive Function.

# MAZE

## Materials

- Fatal Vision® THC Goggles
- Rectangle and Brain dry-erase maze boards
- Red and Black dry-erase markers
- Eraser
- Spray cleaner and cloth

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity02mazemjinstructor> or QR code below.



## Set up

Lay out a maze board, a red marker, and two or more black markers in front each participant.

# MAZE

## Activity Steps

1. **Introduce the Activity.** Ask the participants to think of situations that require planning and problem-solving. A maze requires memory, problem-solving, decision-making and other cognitive functions, typically called executive function. Briefly explain the importance of executive function. See Pages 25-26 for the Maze – Activity Aid.
2. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboard02maze>
3. **Explain the activity.** The participant will use the red marker to solve the maze; draw a line from the green arrow to the left arrow. They can go through the gray and white areas and not through the pink walls. They can go forward or backward to solve the maze.
4. **Baseline.** Have the participant pick up the red marker and complete the maze without the goggles.



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5. **Impaired.** Repeat the activity with the same type of maze while wearing the Fatal Vision® THC Goggles.

Optional: if timing the activity, compare the baseline time to the impaired time. When the participant cannot successfully solve the maze, it models the cognitive impairment that impacts planning and problem-solving from THC use.



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# MAZE

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Introduce the Activity</b>	THC use impairs executive function, affecting workplace routines and skills. Professions like electricians, plumbers, pharmacists, and doctors require specific expertise. Disruption from THC impairment can lead to consequences, impacting safety and productivity for oneself and others in the workplace.	THC use reduces executive function, impacting skills and routines. Driving to familiar places relies on specific skills and routines. Disruption of these due to THC impairment can have serious consequences while driving.	THC impairs executive function, affecting our ability to perform skills and routines effortlessly. Everyday activities like getting dressed in the morning or shooting basketballs rely on these abilities. Disrupting these skills and routines due to THC use can lead to serious consequences. It is important to be aware of the potential risks and make responsible choices to ensure safety and successful task performance.

# MAZE

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Explain the Activity</b>	Solving a maze requires planning, memory, problem-solving, decision-making, and other cognitive functions, typically called executive function. Think of industry/trade-specific situations that require planning and problem-solving.	Solving a maze requires planning, memory, problem-solving, decision-making, and other cognitive functions, typically called executive function. Ask your participants to think of a few daily routines they perform every day that requires planning and problem-solving.	Solving a maze requires planning, memory, problem-solving, decision-making, and other cognitive functions, typically called executive function. Ask your participants to think of driving specific situations that require planning and problem-solving.

# MAZE

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Discussion</b>	<ul style="list-style-type: none"> <li>• Participants' confusion, hesitation, or decision difficulties with the Marijuana/ THC Goggles in the maze?</li> <li>• Observers' description of participants' maze performance with and without THC impairment.</li> <li>• Impact of impairments on planning, problem-solving, safety, and productivity in the workplace.</li> <li>• Review organization policies and procedures regarding impairment in the workplace.</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' experience of confusion, hesitation, or decision difficulties with the goggles?</li> <li>• Description of participants' maze performance with and without THC impairment.</li> <li>• Impact of impairments on everyday routines, skills, and decision-making abilities (e.g., writing a report, preparing a dinner).</li> </ul>	<ul style="list-style-type: none"> <li>• Participants' experience of confusion, hesitation, or decision difficulties with the goggles?</li> <li>• Observers' description of participants' maze performance with and without THC impairment.</li> <li>• Impact of impairments on driving skills, routines, and decision-making abilities.</li> <li>• Slowed decision-making in the activity and its contribution to increased driving risks.</li> </ul>

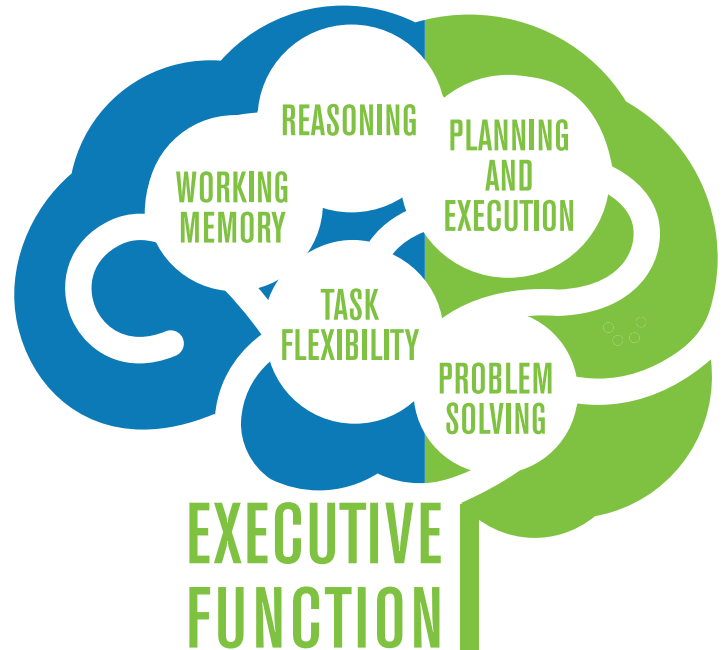


# MAZE – ACTIVITY AID

## Executive Function

Executive function is a series of brain-controlled processes that guide various functions of the mind such as planning, setting and working toward a goal, focusing, solving problems, organizing and directing the body to carry out daily activities. Here are examples of everyday routines that involve executive function:

- Getting ready for an appointment
- Preparing a meal
- Putting together an outfit for the day
- Planning for the weekend activities
- Considering a purchase



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# MAZE – ACTIVITY AID

Executive function helps us solve problems and use our skills. Here are some examples:

- Coding a computer program
- Choreographing a dance routine
- Reading a defensive line and calling football plays
- Training for a triathlon
- Tuning an engine
- Producing and writing music

This is how executive function works when driving:

- Choosing where you want to go
- Deciding on your route to get to your chosen destination
- Knowing the appropriate speed, obeying traffic signals and signs along the way, and being aware of surrounding traffic
- Knowing when you have arrived at your destination

You may have seen examples of executive function loss in people who have sustained traumatic brain injuries (TBIs), or in those who have dementia, such as Alzheimer's. THC use has been shown to decrease and disrupt the brain's executive function performance with outcomes similar to those who experience TBI or dementia.

Consider the impact that loss of executive function would have on:

- School and college planning
- Personal health and safety
- Friendships and family relationships
- Sports performance
- Accomplishing personal, career, and financial goals

# ACTIVITY – 4-IN-A-ROW

# 4-IN-A-ROW

## Activity Purpose

This activity demonstrates the effects of THC impairment, including short-term memory and problem-solving impairment, on completing simple tasks. The discussion table on pages 32-34 provides examples and suggestions for the specific topic being addressed.

## Modeled impairment

The Fatal Vision® THC Goggles simulate loss of motor coordination, disruption of short-term memory, and perception distortion caused by THC impairment.

## Research-Based Approach

Many people often underestimate the negative consequences of driving under the influence of THC due to a cognitive bias known as “optimistic bias.” To challenge this belief, we can demonstrate how simulated THC impairments can affect the ability to navigate a driving course. This allows participants to gain an understanding of the potential consequences of driving under the influence of THC and discuss the severity of those consequences.

# 4-IN-A-ROW

## Materials

- 1 Fatal Vision® THC Goggle
- 1 4-In-A-Row Activity

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/mj4inarowinstructorvideo> or QR code below.



# 4-IN-A-ROW

## Activity Steps

1. **Introduce the Activity.**
2. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboardmemory>
3. **Explain the activity.** Two participants compete in a 4-in-a-row activity. The goal is to be the first to achieve 4 disks in a row, either red or black. The winning row can be vertical, horizontal, or diagonal.
4. **Baseline.** Participants chose their disk color, red or black. Participants take turns dropping one of their disks into the board. When a participant believes they are the first to complete 4-in-a-row, that participant must declare that they have won and point out their winning 4-in-a-row position. If time is tight, it is up to the instructor whether to perform an initial baseline attempt where neither participant is impaired.



[30]

5. **Impaired.** Repeat the activity with the same type of maze while wearing the Fatal Vision® THC Goggles.

6. **Discussion.**



# 4-IN-A-ROW

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Introduce the Activity</b>	Some tasks involve having limited resources to complete a task in any workplace. Proper allocation of resources is vital to successfully accomplish most tasks. How would diminished performance lead to an inability to function effectively in the workplace?	List one or two driving activities that rely on short-term memory.	List one or two activities you perform daily that rely on short-term memory.



# 4-IN-A-ROW

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Explain the Activity</b>	This activity requires both players' short-term memory to strategize the plays required to be the first to place four of their disks in a row.	This activity requires both players' short-term memory to strategize the plays required to be the first to place four of their disks in a row.	This activity requires both players' short-term memory to strategize the plays required to be the first to place four of their disks in a row.

# 4-IN-A-ROW

	<b>Workplace</b>	<b>Traffic Safety</b>	<b>Daily Living</b>
<b>Discussion</b>	<ul style="list-style-type: none"><li>• How does short-term memory apply to accomplishing your everyday job tasks?</li><li>• How could diminished short-term memory degrade your performance on the job?</li><li>• How might these impairments impact daily tasks, planning, problem-solving, and your ability to function and compete effectively in the marketplace?</li><li>• Review your organization's policies and procedures concerning impairment in the workplace.</li></ul>	<ul style="list-style-type: none"><li>• How might short-term memory impairment impact your ability to drive?</li><li>• What are other ways a diminished short-term memory would impact your ability to drive?</li></ul>	<ul style="list-style-type: none"><li>• How might these impairments impact daily tasks, planning, study, sports, and relationships?</li><li>• List two or three areas in your daily life where you depend on your short-term memory. How might these impairments impact these areas?</li></ul>

**ACTIVITY – DIES THC MAT**

# DIES THC MAT

## Activity Purpose

The purpose of this activity is to provide participants with a firsthand experience of the potential consequences of driving under the influence of cannabis. By using the Fatal Vision® THC Goggles, participants will gain an understanding of the specific impairments associated with THC, including distorted visual perception, poor motor coordination, and slowed reactions.

CAUTION: Participants who are susceptible to motion sickness may experience feelings of nausea when wearing the Fatal Vision® THC Goggles.

## Modeled impairment

The Fatal Vision® THC Goggles demonstrate how cannabis use can impair cognitive information processing in the brain. This impairment can have a significant impact on an individual's ability to react appropriately to objects

and hazards while driving. The modeled impairments in this activity include distorted perception, poor motor coordination, and slowed reaction times.

## Research-Based Approach

Many individuals believe that they will not face negative consequences while driving under the influence of THC due to a phenomenon called “optimistic bias.” However, this activity challenges this belief by simulating the potential consequences of driving while impaired by THC. By participating in this simulation and experiencing the impairments firsthand, participants can gain a deeper understanding of the severity of the consequences of impaired driving. This activity is based on research that highlights the importance of promoting safe driving practices and increasing awareness of the risks associated with driving under the influence of THC.

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# DIES THC MAT

## Materials

- Fatal Vision® THC Goggles
- DIES® Marijuana/THC Impairment Activity Mat (14' x 4')
- Steering Wheel
- Impairment Observations Dry Erase Boards
- Path Observations Dry Erase Boards
- Dry Erase markers

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity07diesmjnstructor> or QR code below.



## Overview

The DIES® Marijuana/THC Impairment Activity Mat provides an opportunity for participants to experience the potential effects of THC impairment on driving. Participants will navigate the course with a small model car, choosing their route through the obstacles. The activity is performed twice, first without wearing the Fatal Vision® THC Goggles and then again while wearing the goggles, to highlight the difference between driving sober and driving impaired. Spectators are encouraged to engage in the activity by observing participants' performances and identifying areas where the goggles caused mistakes or missed hazards while driving.

# DIES THC MAT

## Setup

Lay out the activity mat.

Options:

1. Set out a “Munchie Shack” in the center of the mat by a road. As an added direction, have the participant drive to this location as a destination using the miniature car and steering wheel starting at one side of the mat. After arriving at the “Munchie Shack,” have the participant to continue the rest of the way to the opposite side of the mat.
2. Assign a spectator to mark each drive's Path Observations dry-erase board.
3. Assign a spectator to mark each drive's Impairment Observation dry-erase board.

# DIES THC MAT

## Activity Steps

### Scene 1

- 1. Introduce the activity.** THC impairments can distract a biker, pedestrian, or driver by distorting their focus and attention.
- 2. Explain the Activity.** Have participants recount biking, walking, or driving situations they have experienced where a distraction caused them to crash or almost crash. You are headed to a party (or a friend's house or sports event) your task is to drive from one side of town (the mat) to the other side (opposite side of the mat).
- 3. Baseline.**
  - The participant chooses any path to reach the opposite side.
  - The driver must stay on the road and say “stop” when reaching an obstacle or hazard in the road.
  - The participant does NOT use the goggles the first time.
  - Participant travels the selected path.



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# DIES THC MAT

- Ask the participant if the task was easy or difficult.
- Ask the spectators if the driver failed to stop or missed a hazard.

## 4. Impaired Attempt

Set up the impaired attempt with a story: someone you know is using THC at the event. They decide to head out and drive to another location. You know they will be driving under the influence of THC. The driver puts on the goggles and returns to the opposite end of the mat, following any path. Ask the spectators how the driver performed. Review the observations marked on the Path and Impairment Observations dry-erase boards.

5. **Discussion.** Ask the group how they might stop the person from driving.



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# DIES THC MAT

## Scene 2

1. **Introduce the activity.** THC impairments can distract a biker, pedestrian, or driver by distorting their focus and attention.
2. **Explain the activity.** The driver is going to an event that is a new location to them. The path includes several one-way streets.
  - The driver chooses either the pink or grey path. If they choose the grey path, the driver can only cross the pink path once.
  - If they choose pink, they can only cross the grey path once.
  - The driver must say “stop” for any obstacle in their path.
3. **Baseline.**
  - Give the participant a starting spot and a destination on the opposite side of the mat.
  - The driver travels their chosen path.
  - Ask the driver if the task was easy or difficult.
  - Ask the spectators if the driver failed to stop or missed a hazard.

4. **Impaired.** Have the participant put on the goggles and drive to the opposite side of the mat, using the color path not chosen the first time. If the driver chooses the pink path for the first drive, they should use the grey path on their way back.
  - If they use the grey path, the driver can only cross the pink path once.
  - If they use pink, they can only cross the grey path once.
  - Ask the spectators how the driver performed. Review the observations marked on the Path and Impairment Observations dry-erase boards.

## Discussion.

- Ask the driver to describe the impact wearing the goggles had on their ability to travel the path.
- Identify other driving situations where losing perceptual and problem-solving ability because of THC use could result in serious consequences.

# DIES THC MAT

## Presentation Tips

Get to know the typical behaviors that participants display while wearing the goggles so you can connect those behaviors to the corresponding THC impairment.

### PARTICIPANT BEHAVIORS AND ASSOCIATED MODELED THC IMPAIRMENT

<b>OBSERVED BEHAVIOR</b>	<b>MODELED IMPAIRMENT</b>
The participant may travel much slower while wearing the goggles.	Relates to a sense of hypervigilance or paranoia and a misperception of time and distance.
The participant might stop where there is no obstacle.	Relates to the misperception of time & distance.
The participant may exhibit hesitation and a loss of confidence in traversing the path, accomplishing tasks much less efficiently and effectively.	Loss of confidence.
The participant may try at first, but when the activity proves difficult for them, they give up or rush through the rest of the path, not caring if they make mistakes along the way.	Loss of motivation.
The participant may remark that they forgot about the obstacles or the route they took without wearing the goggles.	Short-term memory loss.
The participant may be so focused on traversing the path that they miss hazards on the path.	Tunnel vision/Divided Attention Failure.

# **ACTIVITY – ROAD RECALL WITH DIES ACTIVITY MAT**

# ROAD RECALL

## Activity Purpose

This activity aims to demonstrate the effects of THC impairment on motor skills, memory, and decision-making abilities. By using the Fatal Vision® THC Goggles and a distracted driving course mat, participants can experience firsthand the challenges of impaired driving and gain a deeper understanding of its potential consequences.

## Modeled impairment

The Fatal Vision® THC Goggles simulate the loss of motor coordination and short-term memory, as well as the distortion of information and perception associated with THC impairment. By filtering certain visual cues, the goggles create conditions that make it more difficult for the participant to rely on their short-term memory, providing a realistic experience of the effects of cannabis on driving.

Note: While the THC goggles cannot cause short-term memory loss, they create conditions making it more difficult to rely on your short-term memory.

## Research-Based Approach

Driving under the influence of THC is a serious concern, and it's not uncommon for individuals to underestimate its negative effects due to a cognitive bias known as "optimistic bias." To raise awareness and challenge this belief, we can conduct a simulation that demonstrates how THC impairments can affect our driving performance. By participating in this simulation and experiencing firsthand the difficulties of navigating a driving course while under the influence of THC, individuals can gain a deeper understanding of the potential consequences of impaired driving. Through open discussion, we can further explore the severity of these consequences and promote safer driving practices for everyone on the road.

# ROAD RECALL

## Materials

- Fatal Vision® THC Goggles
- DIES® Distracted Driving Activity Mat (14' x 4')
- Steering Wheel
- 12 Black and 12 Red Activity Chips

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity06roadrecallmjinstructor> or QR code below.



## Setup

1. Lay the DIES® Distracted Driving Activity Mat on the floor.
2. Place 6-8 red chips at various locations on the mat. Red chips represent locations that require a 1-2 second stop.
3. Place 6-8 black chips at various locations on the mat.
4. Place a mix of red and black chips at a few buildings intersections to represent hazards or pedestrians.

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# ROAD RECALL

## Activity Steps

1. **Introduce the activity.** Ask the participants to recall situations they have experienced or seen that required a quick decision and action to avoid injury or a crash while walking, biking, or driving.
2. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboardroadrecall>
3. **Explain the activity.** Instruct them to travel to and stop at several locations on the mat indicated by the red chips.
  - If there is a red chip at an intersection, the participant must stop for two seconds before continuing.
  - Drivers can pass a black chip without stopping.
4. **Impaired Attempt.** Have the participant wear goggles and travel the same route. The participant travels to all the places they think have red chips, stopping at each red chip and returning to the beginning location.



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# ROAD RECALL

## 5. Discussion.

- Discuss the observations made by the instructors and observers during the impaired drive.
- Explore how short-term memory loss can cause problems for a driver and how it might impact various driving situations, such as a pedestrian walking into the street in front of a vehicle, making lane changes, or a traffic light changing to flashing yellow at a turn signal.



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# **ACTIVITY – OBJECT IDENTIFICATION**



# OBJECT IDENTIFICATION

## Activity Purpose

This activity demonstrates the effects of THC impairment – including a loss of reaction time, divided attention failure and a distorted perception of visual information – through various traffic scenarios.

## Modeled impairment

The Fatal Vision® THC Goggles model impairments resulting from THC use. THC use cognitively filters information in a driver's Useful Field of View (UFOV). UFOV is the visual area in which a person gains important information to use while driving. The filtered information results in "divided attention failure," or the inability to effectively recognize and switch focus between tasks required for driving. For example, when a distracted driver crashes into something or someone, the driver may claim he didn't see the object or person he

crashed into. However, there is nothing physically wrong with the driver's ability to see; the problem is in perceiving the person or object he crashed into. THC use diminishes the brain's ability to divide a person's attention and simultaneously process and prioritize sensory information, which causes cognitive gaps in the driver's UFOV. The driver is not able to perceive the potential hazard.

Another way to describe this impairment is that a person tends to focus on only one sensory input at a time. They will work harder to concentrate on what they are seeing in front of them and pay less attention to other sensory cues, such as the noise or sight of other cars around them.

# OBJECT IDENTIFICATION

## Research-Based Approach

Driving under the influence of THC is a serious concern, and it's not uncommon for individuals to underestimate its negative effects due to a cognitive bias known as "optimistic bias." To raise awareness and challenge this belief, we can conduct a simulation that demonstrates how cannabis impairments can affect our driving performance. By participating in this simulation and experiencing firsthand the difficulties of navigating a driving course while under the influence of THC, individuals can gain a deeper understanding of the potential consequences of impaired driving. Through open discussion, we can further explore the severity of these consequences and promote safer driving practices for everyone on the road.

## Materials

- Fatal Vision® THC Goggles
- UFOV Scene 1 & 2 Videos
  - Driving Scene 1:  
<https://vimeo.com/innocorp/ufovactivity3drivescene1>
  - Driving Scene 2:  
<https://vimeo.com/innocorp/ufovactivity3drivescene2>
- Computer with Projector or Large-Screen

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity03mjninstructor> or QR code below.



# OBJECT IDENTIFICATION

## Activity Steps

1. **Introduce the Activity.** Show the UFOV Explainer video to introduce and discuss the importance of UFOV while driving.  
<https://vimeo.com/innocorp/activity3explainerintro>
2. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboard03ufov>
3. **Explain the Activity.** Instruct participants that they will be identifying items typically seen in a driving situation. The object is to identify **ONLY** the objects that have a **COLORED** dot on them. The dots will appear for about 2 seconds. The participant should name them quickly and simply – “car,” “bus,” “sign,” and “pedestrian.”
  - The participant should ignore the black dots. These objects represent irrelevant traffic events in the scenario, and the objects should not be called out.



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# OBJECT IDENTIFICATION

## 5. **Baseline.** Show either:

Driving Scene 1:

<https://vimeo.com/innocorp/ufovactivity3drivescene1>

Driving Scene 2:

<https://vimeo.com/innocorp/ufovactivity3drivescene2>

The participant is to identify the correct colored objects in the traffic scene without wearing the goggles. Note the performance of the participant and how appropriately they reacted to the scene. Tip: The scene is best viewed on a large-screen monitor or a high-resolution projector.

## 6. **Impaired.** Ask the participant to repeat the activity while wearing the goggles. You can use either video. Once again, note the participant's performance. Count the number of errors they make — colored objects missed or irrelevant (black) objects called out that should have been ignored. Note differences in hesitation, confidence, and general performance while wearing the goggles.

## 7. **Discussion**

- How is UFOV important for driving safely?
- What types of visual information that might occur within a person's UFOV would be critical for a driver to recognize and respond to quickly?
- Describe driving situations in which having divided attention failure while driving could lead to potentially serious consequences.

For more information on UFOV please see: "Useful Field Of View". N.p., 2016. Web. 28 Jan. 2016.

- <http://www.ncbi.nlm.nih.gov/pubmed/9546567>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4410269/>
- <http://www.biopticdrivingusa.com/ufov-usefull-field-of-vision/>
- <http://www.visualawareness.com/Pages/whatis.html>
- <http://www.ncbi.nlm.nih.gov/pubmed/15723231>
- <http://archopht.jamanetwork.com/article.aspx?articleid=416261>

# **ACTIVITY – DRIVING SIGNALS RESPONSE**

# DRIVING SIGNALS RESPONSE

## Activity Purpose

This activity demonstrates the effects of THC impairment, including loss of reaction time and attention, and distorted perception of visual information.

## Modeled impairment

THC use impairs a driver's estimation of time and distance and causes problems with divided attention. Divided attention is when a driver must quickly and accurately shift their attention between driving-related tasks. This impairment results in the loss of a driver's reaction time.

## Research-Based Approach

Driving under the influence of THC is a serious concern, and it's not uncommon for individuals to underestimate its negative effects due to a cognitive bias known as "optimistic bias." To raise awareness and challenge this belief, we can conduct a simulation that demonstrates how cannabis impairments can affect our driving performance. By participating in this simulation and experiencing firsthand the difficulties of navigating a driving course while under the influence of THC, individuals can gain a deeper understanding of the potential consequences of impaired driving. Through open discussion, we can further explore the severity of these consequences and promote safer driving practices for everyone on the road.

# DRIVING SIGNALS RESPONSE

## Materials

- Fatal Vision® THC Goggles
- Keynote or PowerPoint® – Red X Display for Driving Signals Response Kit Download: [https://www.fatalvision.com/wp-content/uploads/2023/05/fv\\_mmj\\_red\\_x\\_display\\_activity\\_4.pptx](https://www.fatalvision.com/wp-content/uploads/2023/05/fv_mmj_red_x_display_activity_4.pptx)
- Projector or Large-Screen, or TV to use Activity Scenes 1-5. There are two versions of each driving scene. Use the version without the indicator dot when running a baseline test without the goggles. Use the version with an indicator dot in the upper right corner when a participant is wearing the Fatal Vision® THC Goggles.
  - Driving Scene 1: <https://vimeo.com/innocorp/activity4drivescene01>  
Driving Scene 1 Red Indicator Dot: <https://vimeo.com/innocorp/activity4drivescene01rd>
  - Driving Scene 2: <https://vimeo.com/innocorp/activity4drivescene02>  
Driving Scene 2 Red Indicator Dot: <https://vimeo.com/innocorp/activity4drivescene02rd>
  - Driving Scene 3: <https://vimeo.com/innocorp/activity4drivescene03>  
Driving Scene 3 Red Indicator Dot: <https://vimeo.com/innocorp/activity4drivescene03rd>
  - Driving Scene 4: <https://vimeo.com/innocorp/activity4drivescene04>  
Driving Scene 4 Red Indicator Dot: <https://vimeo.com/innocorp/activity4drivescene04rd>
  - Driving Scene 5: <https://vimeo.com/innocorp/activity4drivescene05>  
Driving Scene 5 Red Indicator Dot: <https://vimeo.com/innocorp/activity4drivescene05rd>
- Driving Signals Response Scenes Guide <https://www.fatalvision.com/wp-content/uploads/2023/05/10-MJSceneguide2023.pdf>

# DRIVING SIGNALS RESPONSE

## Introduction

Watch the instructor video at <https://vimeo.com/innocorp/activity04mjinstructor> or QR code to right.



## Activity Steps

1. **Show the Introduction Whiteboard video.**  
<https://vimeo.com/innocorp/mjwhiteboard04drivesignals>
2. **Baseline.** Have a participant role-play a driver with the Activity Driving Scenes without the goggles. The participant will sit in front of the observers with a clear view of the driving scene. They will raise their hand to indicate when they would need to “hit the brake” or “cover the brake” throughout the driving scene.





# DRIVING SIGNALS RESPONSE

3. **Impaired.** Have the participant repeat Step 2 while wearing the Fatal Vision® THC Goggles. Use the driving scenes with the Indicator Dot when the participant is wearing the Fatal Vision® THC Goggles.
- Download the Red X Display PowerPoint or Keynote file [https://www.fatalvision.com/wp-content/uploads/2023/05/fv\\_mmj\\_red\\_x\\_display\\_activity\\_4.pptx](https://www.fatalvision.com/wp-content/uploads/2023/05/fv_mmj_red_x_display_activity_4.pptx) to indicate when the participant misses a braking cue or delays their response. Start the slide show, and with each miss, click the pointer to display an X. When there are 3 X's, end the activity.
  - Use the Driving Signals Response Scenes Guide <https://www.fatalvision.com/wp-content/uploads/2023/05/10-MJSceneguide2023.pdf> to facilitate a discussion with relevant questions and key points for each driving scene.

4. **Discussion.**

- What were the differences in recognition and reaction time between the goggles participants and non-goggles participants?
- How might those differences result in either a safe drive home or in devastating consequences?
- How and why would being under the influence of THC result in potentially serious consequences for a driver?
- What other situations in our daily lives might result in substantial risk to self and others when under the influence of THC?

# DRIVING SIGNALS RESPONSE

## Driving Signals Response Scenes Guide – Sample

### ACTIVITY SCENE 1

**Description:** This is a 2-minute 30 second drive in a small town with a school zones. The driver will be on a 4-lane median divided roadway with moderate traffic and a two-lane with on-coming heavy traffic.

**Hazards:** This scene requires the driver to be aware of stoplights, stop signs, pedestrian crosswalks and school zones. The driver must brake in response to traffic conditions, traffic signs and signals, and pedestrians in cross-walks.

**Driver Call-outs:** Have the driver call out the potential reactions and hazards they encounter along the drive. The red-indicator dot in the upper right-hand corner of the scene will que you to situations that present potential hazards.

**Observer Notes:** have the instructor or assigned observer identify hazard points along the drive that the driver missed or did not react to appropriately.

**Discussion Points:** Review those spots the driver reacted to appropriately and those that the driver missed.

Complete Scene Guide

<http://fatalvision.com/wp-content/uploads/2023/05/10-MJSceneguide2023.pdf>



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