



Government of  
Northwest Territories

*Northwest Territories Defensive Firefighter Training*

**SESSION 1**

# FIREFIGHTER SAFETY

**Government of the Northwest Territories**  
*Municipal and Community Affairs*

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# SESSION 1 – FIREFIGHTER SAFETY



## INTRODUCTION

Northwest Territories Defensive Firefighter Training (NWT-DFT) is a competency-based learning program for community fire departments operating at a defensive level of service. This workbook provides volunteer firefighters with the knowledge to apply to achieving 34 required skills. When successfully assessed, students and volunteer NWT firefighters will have met the basic requirements to appropriately respond to fire scenes at a safe distance from fires. Skills in the NWT-DFT program are to be assessed based on validated learning outcomes from the National Fire Protection Association (NFPA) 1001 standard.



## LEARNING OUTCOMES

1. Explain the main areas of firefighter deaths and injuries
2. Recognize key safety habits
3. Explain how the five elements of good firefighter safety culture work together
4. Explain why firefighters need to be healthy
5. Recognize where to find mental health tools and resources
6. Recognize the right/obligation to refuse unsafe work



*Digital versions of all books in the NWT Defensive Firefighter Training program are available for download and/or printing here:*

<https://communitylearning.learnworlds.com/defensive-fire>



# FIREFIGHTER SAFETY OVERVIEW

Firefighting can be dangerous work, even at the defensive level. Defensive firefighting means working from a safe distance, outside of buildings, to stop a fire from spreading and to protect people and property. You do not enter burning structures, but you still face risks.

Most firefighter injuries and deaths come from four main areas: driving to and from calls, unsafe or not enough training, poor health and fitness, and not staying alert on scene. This session will help you learn how to stay safe in all of these areas.

A strong safety culture is the best way to prevent injuries. Safety culture means following standard operating procedures (SOPs), training the right way, working as a team, keeping equipment in good shape, and staying aware of your surroundings. Freelancing—doing things your own way—is never safe. In the Northwest Territories, you also have the right and duty to refuse unsafe work.

Good health and fitness are just as important as safe habits on scene. Firefighters are at higher risk of heart disease, cancer, and stress. Proper rest, hydration, and fitness can save your life. Taking breaks and mental health supports also help you and your team stay strong.





# FIREFIGHTING RISKS

## Most firefighter injuries and fatalities relate to:

### Transportation

Many firefighter deaths and injuries happen on the way to, or returning from, an emergency scene. Traffic accidents often result from being too rushed to arrive on scene, and not following safe driving procedures. Proper procedures must be followed regardless of the vehicle and the situation, including wearing seatbelts, driving according to weather and road conditions, and abiding by all rules of the road.

- Wear PPE
- Wear Seatbelt
- Drive safely
- Secure equipment
- Communicate clearly
- Stay Alert
- Brace for Stops

### Training

Training is how firefighters learn to apply safe work practices and procedures. Many training drills can still be dangerous and carry risk no matter what safety measures are taken. Equipment used in training must be used as it was intended and be properly maintained. It is important to follow the same steps and procedures during training that you would in a real event. Don't take shortcuts in training as you are more likely to take those same shortcuts on an emergency scene.

- Wear Proper PPE
- Follow instructions
- Inspect equipment
- Maintain situational awareness
- Communicate clearly
- Use safe techniques

### Health and fitness

Firefighters are at higher risk of heart disease than other members of the public. This is due to exposure to heat and the exertion involved in firefighting activities. They are also at a higher risk of contracting various types of cancer. Firefighters are exposed to various carcinogens (cancer-causing agents) that come from smoke particles and gases in burning building materials, and even from the residue left on firefighting gear. They are also exposed to diesel engine exhaust. Firefighters are vulnerable to stressors that can affect mental health and well-being.

- Warm up and cool down
- Use proper form
- Hydrate regularly
- Listen to Your Body: stop if you feel pain.
- Eat healthy
- Get enough sleep
- Monitor mental health

### Scene safety

Defensive firefighters are not able to enter structures. This is not uncommon in many small town fire departments. However, the hazards on scene may also include traffic, debris, indirect emergencies resulting from a fire or other emergencies. People at the emergency scene can often create hazards either by accident, or sometimes intentionally. A lack of situational awareness of what is happening on scene can lead to poor decisions or actions that put firefighters at risk.

- Stay focused
- Communicate clearly
- Assess Surroundings
- Follow Procedures
- Anticipate Risks
- Ask for Clarification
- Work as a team



# FIREFIGHTING RISKS

## Key safety habits

What risk area does the safety habits fall under? 1) Transport; 2) Training; 3) Health/fitness; 4) On scene

<b>RIDING THE APPARATUS (VEHICLE)</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Walk, don't run, to the apparatus</li><li>• Don (put on) PPE before entering the apparatus</li><li>• Seat belts must be properly fastened before the apparatus moves</li><li>• Secure all equipment properly</li><li>• Wear hearing protection</li><li>• Always check for traffic before exiting the apparatus</li><li>• Use three points of contact (2 hands-1 foot or 2-feet-1 hand) in contact with apparatus when entering or exiting</li></ul>
<b>SAFE DRIVING</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Never drive impaired</li><li>• Ensure you have a valid driver's licence</li><li>• Abide by all traffic regulations</li><li>• Drive according to road and weather conditions</li><li>• Watch for other emergency vehicles (e.g., RCMP, ambulance)</li><li>• Ensure regular vehicle maintenance</li></ul>
<b>TRAFFIC SAFETY ON SCENE</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Follow standard operating procedures (SOPs)</li><li>• Park in a safe area</li><li>• Wear high-visibility safety vests</li><li>• Comply with all applicable traffic laws</li><li>• Position apparatus to protect responders from traffic</li></ul>
<b>WEATHER</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Account for weather conditions during transport (driving)</li><li>• Dress appropriately for the conditions</li><li>• Watch your footing on slippery or uneven surfaces</li></ul>
<b>PERSONAL ACCOUNTABILITY</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Ensure you provide an up-to-date account of what you are doing and where you are working during an incident</li></ul>
<b>TEAMWORK</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Never work alone</li><li>• Maintain visual or vocal contact with others at all times</li></ul>
<b>REST AND RECOVERY</b> <b>1 2 3 4</b>	<ul style="list-style-type: none"><li>• Get adequate rest and recovery (see Appendix 1)</li></ul>



# ESTABLISHING A SAFETY CULTURE

## Five components of firefighter safety culture

<b>1. STANDARD OPERATING PROCEDURES</b> Know what to do	Every fire department must develop and follow procedures or guidelines. Standard Operating Procedures (SOPs) are put in place by your local fire department. They should incorporate safety programs, regulations, and best practice. All new firefighters must review and be familiar with SOPs. There is a higher likelihood of firefighter freelancing without SOPs in place.	
<b>2. TRAINING</b> Practice how to do it	Training is essential to bring safe practices all together. During training you will learn about your own department's safety procedures and take part in skill development that outlines the steps to achieve each skill consistently so they become habit. Training also helps you to experience why these safety procedures are necessary.	
<b>3. RELIABLE PERSONNEL &amp; TEAMWORK</b> Ability to depend on one another	Most firefighter personnel in small NWT communities are volunteers. Volunteers need to be trained, and willing to work as part of a team, which includes following a chain of command. It is the responsibility of each firefighter to be fit to work because your team members rely on you.	
<b>4. EQUIPMENT</b> Maintenance and Usage	Firefighters need to be properly trained to operate all equipment they use and keep it maintained according to manufacturer instructions.	
<b>5. SITUATIONAL AWARENESS</b> Evaluating risk	Firefighters need to be aware of what's happening around them by paying attention to the environment, noticing any changes, and understanding how those changes might affect what is being done. In firefighting, this could include watching for hazards like smoke, fire direction, or unsafe conditions. It's important to stay alert, so you can make quick decisions to stay safe and respond to the situation correctly.	



# ESTABLISHING A SAFETY CULTURE

## How to maintain situational awareness

Situational awareness means knowing what is happening around you, understanding the dangers, and planning the safest actions. It is key to staying safe and doing your job well.

Situational awareness for firefighters means always paying attention to what is happening around you, knowing where dangers might be, and thinking ahead to stay safe and handle emergencies well.

- Survey the scene first for situational awareness, report safety concerns to a superior officer.
- Operate within established scene boundaries and protected work areas.
- Always pay attention to changing fire conditions.
- Wait for your superior officer to give orders before taking action, then:
  - Follow instructions.
  - Work in assigned teams.
  - Do not freelance.
- If there are hazards like violence, weapons, gas leaks, chemicals, or anything unknown — do not enter the scene. Wait until the right people, like the police or utility providers say it is safe.
- If you see or feel that something is not safe, tell your supervisor. They will decide if you should stay, move back, or help keep the area safe.



### WHAT IS FREELANCING?

- Freelancing means doing things your own way even when instructed to do something different.
- Freelancing must never happen under any circumstance.
- Freelancing can be extremely dangerous. It has a negative effect on operations and teamwork.

### KNOW YOUR RIGHTS

According to **NWT Occupational Health and Safety Regulations**, workers have the right to refuse work if they have reasonable grounds to believe the work presents a danger to themselves or others. See **Appendix 2: UNACCEPTABLE RISK**



# ESTABLISHING A SAFETY CULTURE

Firefighter deaths and injuries can be significantly reduced when a strong and consistent safety culture is introduced.

There are five key safety practices that create a continuous safety culture when practiced together at all times.

When they overlap, it means key safety habits are being followed.

When a good safety culture is in place, firefighters are best protected against the risks that cause most firefighter deaths and injury.





# FIRE SAFETY SCENARIOS

Read these fire safety scenarios or watch the video. Answer the following:

- What area(s) of safety does this case study fall under? Why? (may be more than one answer)
- How could the following safety considerations have been adjusted to prevent the injury?

## Scenario 1

A 51-year-old volunteer firefighter was injured when a car struck him as he was refilling a water truck. He was parked on the edge of the road. The incident occurred at approximately 7:30 P.M. The truck's lights blinded the driver of the car. The firefighter was not wearing any reflective PPE, which was outlined in standard operating procedures.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness

## Scenario 2

A new 26-year-old volunteer firefighter was injured getting into a fire truck responding to an emergency. As he tried to climb into the truck, while carrying his helmet, he slipped and suffered a concussion. The firefighter missed some training so did not know to hold the safety bars (using three points of contact at all times) as he mounted the vehicle while wearing his helmet. The department's standard operating procedures prevent anyone with incomplete training from taking part in a response.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness

## Scenario 3

A firefighter died while attending a house fire. The 55-year-old had allowed his health habits to slide over the past few years. He was now overweight and a heavy smoker. The firefighter suffered a heart attack on scene due to heat and exhaustion. Another medically trained firefighter initiated CPR to the team member in distress. Everyone in this situation had been trained and all followed standard operating procedures.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness



# FIRE SAFETY SCENARIOS

Read these fire safety scenarios or watch the video. Answer the following:

- What area(s) of safety does this case study fall under? Why? (may be more than one answer)
- How could the following safety considerations have been adjusted to prevent the injury?

## Scenario 4

A 44-year-old firefighter was injured when a hose malfunctioned during a training exercise. A different station member setting up the hose was a new volunteer. He thought he was following the correct protocol after confirming all the steps with a superior officer. New SOPs had not yet been established for this piece of equipment.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness

## Scenario 5

A 20-year-old female firefighter suffered a mental health crisis while working as a volunteer. The culture of the station was not friendly to female firefighters. During a training exercise, the female firefighter found herself in a situation where she needed to trust members of her team but felt she could not. As a result, she felt she would be unable to perform her duties very well in an actual response. She has since quit the department.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness

## Scenario 6

The following is true and happened in 2018, in West Virginia: A pump truck/engine crashed killing two firefighters and injuring three others. The apparatus (truck) they were travelling in rolled over while operating on a wet roadway. The firefighters were not wearing seatbelts, nor were they required to under the station's SOPs.



- SOPs
- Personnel (teamwork, fitness)
- Training
- Equipment
- Situational Awareness



# FIRE SAFETY SCENARIOS

## NOTES:



# IMPORTANCE OF HEALTH AND FITNESS

Firefighters are at a higher risk of developing some medical conditions than the general public. Heart illnesses can be aggravated from heat and exertion efforts involved in firefighting. Firefighters are also at a higher risk of developing illness (such as heart disease and cancer) due to working around carcinogens (cancer-causing agents) that can come from fire smoke and vehicle exhaust. Some fire departments implement regular physical fitness training programs to increase firefighter resistance to these illnesses.

## CANCER RISK

In Canada, cancer causes 50 fatalities per 100,000 firefighters. Sometimes only one exposure to a harmful product can have a negative effect on your health. Wearing personal protective equipment (PPE) properly and staying out of the smoke and other products present at a fire is important.

The Northwest Territories (NWT) Workers' Safety and Compensation Commission (WSCC) provides coverage and compensation for firefighters diagnosed with some cancers. This can include:

- Medical and treatment costs.
- Wage replacement benefits.
- Rehabilitation services.
- Survivor benefits for dependents if the firefighter passes away due to cancer.

Firefighters should contact their local WSCC office for assistance with claims or information.

- Phone: 1-800-661-0792
- Search: WSCC NWT



## FIREFIGHTER FITNESS PROGRAMS

Firefighter fitness programs often focus on four areas:

**Cardiovascular** to handle long periods of exertion, such as climbing stairs or working in intense heat.

**Strength Training** to lift heavy objects like hoses, tools, and injured individuals.

**Flexibility and Mobility** to navigate tight spaces and prevent injuries.

**Functional Training** to simulate real-life firefighting tasks.

- Pulling weighted sleds to mimic dragging hoses.
- Climbing stairs with weighted vests to simulate carrying equipment.
- Swinging sledgehammers or flipping tires to develop practical strength.

Some fire departments may even conduct regular fitness assessments to ensure that firefighters meet the physical demands of their roles.

## ON SCENE REST AND REHABILITATION

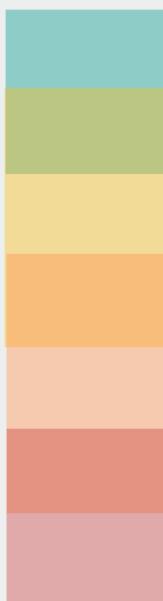
On-scene rehab stations are areas where firefighters can take breaks during emergencies. They provide water, snacks, and a place to cool down or warm up, depending on the weather. Firefighters can rest and get checked by medical staff to stay safe and healthy while working. These stations help keep firefighters strong and ready to do their job. For more information, see *Appendix 2: Unacceptable Risk*.



# IMPORTANCE OF HEALTH AND FITNESS

## MENTAL HEALTH CONTINUUM MODEL

This tool helps you understand your mental health and what steps to take to stay healthy. Your mental health can change over time, moving between these stages.



Get enough sleep, stay active, and talk to someone you trust.

Talk to a doctor or mental health professional. Getting help early makes a big difference.

**Healthy (Green):** You feel good, focused, and in control of things.

**Reacting (Yellow):** You feel stressed, tired, or upset, but can still manage.

**Injured (Orange):** You have trouble sleeping, and constantly feel anxious.

**III (Red):**  
You may feel very sad, panicked, or unable to function in everyday tasks.



## CRITICAL INCIDENT STRESS MANAGEMENT (CISM)

Firefighters are susceptible to critical incident stressors that can affect mental health and well-being. Critical Incident Stress Management (CISM) is a way of dealing with effects from traumatic critical incidents. It is a structured program designed to help personnel cope with the psychological aftermath of traumatic events encountered on the job. In small communities without established CISM programs, the most realistic ways for firefighters to access support includes:

**Telehealth Services** provided by regional health authorities or private providers for access to remote counseling and mental health support.

**Regional Health and Social Services** make referrals to mental health professionals who can offer support.

**Online Resources and Training** can be accessed from organizations such as the International Critical Incident Stress Foundation (ICISF).

**Fire Department Collaboration** with the NWT Fire Chiefs Association can help to find support.

## SUPPORTING YOUR TEAM

Firefighting is a team effort.

- **Check In:** Ask teammates how they're doing, especially after tough calls.
- **Watch for Signs:** Look for changes like mood swings, tiredness, or pulling away from the group.
- **Talk It Out:** Let your teammates know it's okay to share their struggles. Keep confidential.
- **Help Them Get Support:** If someone needs help, guide them to a counselor or resource.

- **811 Helpline:** Call 811 or 1-844-259-1793
- **Hope for Wellness Helpline:** Talk to a counsellor 24 hours/day, 7 days/week. Call 1-855-242-3310
- **Indian Residential Schools Resolution Health Support Program:** 24-Hours. Call 1-866-925-4419
- **9-8-8 Suicide Crisis Helpline:** Available 24 hours/day, 7 days/week. Text 988



# LEARNING DEBRIEF

## REMEMBER

- Developing proper work habits during training in this course helps ensure safety later.
- Do not attempt anything you feel is beyond your ability or knowledge.
- Tell someone if you see something that you feel is an unsafe practice.
- Continue to learn teamwork and practice working as a team.
- A firefighter injured during training should not return until medically cleared for duty.

**Reflect on the following questions. Jot down notes or sketches in the spaces provided.**

<p><b>What would you say are the biggest risks firefighters in your community face during a fire response, and how can you work to avoid them?</b></p>	
<p><b>How can personal health and well-being help you stay safe and effective as a firefighter?</b></p>	
<p><b>Why is having a good safety culture important?</b></p>	



# APPENDICES

# APPENDIX 1: Firefighter Rehabilitation

Firefighter rehabilitation (referred to as rehab) defines the rest and recovery period that is required after physical and mental exertion that occurs on emergency scenes. Without appropriate rehab breaks, firefighters can become less efficient, putting them and their team at greater risk of injury or illness. Rehab procedures are one of the safety measures that departments can put in place to help reduce risks.

## Reasons for rehabilitation

### Physical Exhaustion

Firefighting is physically demanding, and carrying heavy gear can be exhausting. Rehab gives firefighters a chance to rest and regain their strength.

### Cardiovascular Strain

Firefighting puts a strain on the heart. Vital signs are monitored during rehab to prevent issues like heart attacks.

### Toxin Exposure

Firefighters are exposed to smoke and harmful chemicals. Rehab helps limit exposure to these toxins, protecting their health.

### Weather

In cold weather, firefighters risk hypothermia and frostbite. In hot weather, they can overheat due to their gear. Rehab offers a sheltered space with seating for them to rest safely away from the elements.

### Heat Stress and Dehydration

Firefighters work in hot conditions while wearing heavy gear, which can cause heat stress and dehydration. Rehab helps them cool down and rehydrate.

### Mental and Emotional Stress

Firefighting is mentally and emotionally tough. Rehab gives time to decompress, get support, and lower the risk of long-term stress.

### Injury Prevention

Without proper rest, firefighters are more likely to get injured. Rehab gives time to rest and spot any injuries early to prevent further harm.



## Essential item list

- Water/electrolyte drinks (hydration is essential)
- Snacks with carbohydrates and protein (granola bars, fruit, or nuts)
- Chairs or benches for rest and recovery
- Shade or shelter (small tent or tarp) to protect from sun or rain.
- Cooling supplies (cold packs, fans, or misting devices) for hot weather
- Warming supplies (blankets or portable heaters) for cold weather
- First aid supplies for minor injuries
- Medical equipment to monitor vitals (blood pressure cuff, pulse oximeter)
- Towels or wipes for cleaning off sweat/debris
- Trash bags for waste disposal
- Accountability log to track personnel

# APPENDIX 2: Unacceptable Risk

Firefighting is a dangerous job, but there are rules to protect you from unnecessary risks. In the Northwest Territories, the **Safety Act** and **Code of Practice** give all workers the right to say no to unsafe work. For firefighters, this means knowing the difference between acceptable danger and unacceptable risks.

## RIGHT AND OBLIGATION TO REFUSE UNSAFE WORK

The **NWT Safety Act** says workers can refuse work if they believe it will hurt them or someone else. This includes firefighters, even though the job is dangerous. If you think a task is too unsafe:

**Tell Your Supervisor:** Explain what makes the task dangerous.

**Stop Work:** Stay in a safe place while the problem is checked.

**Work Only When Safe:** The task should not continue until the danger is fixed or managed.

You cannot be punished for refusing unsafe work if you follow these steps. In fact, the NWT Safety Act and Occupational Health and Safety Regulations outline a legal obligation for workers to refuse unsafe work if they believe it poses a danger to themselves or others. This obligation ensures workers, including firefighters, prioritize safety in all situations.

## WHAT IS UNACCEPTABLE RISK IN DEFENSIVE FIREFIGHTING?

Firefighting always involves risk, but some situations are beyond what is reasonable or safe:

**Entering Buildings:** Defensive firefighters put themselves and others at risk if entering unsafe structures without the proper training.

**Damaged Gear/Equipment:** Never fight a fire without wearing proper protective equipment.

**Toxic Chemicals:** Don't handle dangerous materials without the correct tools or training to do so safely.

**Uncontrollable Fire:** Don't get close to a fire that is spreading too fast or burning out of control.

## HOW TO DECIDE

Firefighters are trained to manage risk, but some risks are too dangerous. Use these steps to decide:

**Follow Your Training:** Stick to the defensive tactics you've learned.

**Check the Scene:** Look for signs of danger like unstable buildings or strong winds.

**Work with Your Team:** Talk to your crew and your leader about the risks.

**Trust Your Instincts:** If you feel it's unsafe, speak up.

By following the Safety Act, using your training, and working with your team, you can decide when work is too unsafe. Remember, staying safe helps you keep helping your community.



# GLOSSARY OF TERMS

## Communications

- **ABC Button:** Customizable preset button on radios
- **Channel Selector:** Dial or button to change radio channels
- **Communication Feedback Loop:** Confirming messages by repeating them back
- **Decoding:** Interpreting the received message
- **Emergency Button:** Sends alert for immediate help
- **Emergency Line:** Dedicated line for urgent calls
- **Emergency Traffic:** High-priority message overrides others
- **Encoding:** Turning thoughts into a message
- **Feedback:** Receiver's response to a message
- **Message:** Information being communicated
- **Monitor/Scan Buttons:** Used to listen to multiple radio channels
- **Noise:** Anything that disrupts communication
- **Portable Radio:** Handheld radio for communication
- **Push-to-Talk (PTT) Button:** Press to talk on a radio
- **Receiver:** Person who gets the message
- **Sender:** Person who sends the message
- **Transmission:** Sending a message over radio

## Equipment

- **Apparatus:** Firefighting vehicle
- **Deck Gun:** Fixed, high-volume water device on fire trucks
- **Dry Barrel Hydrant:** A hydrant that drains to prevent freezing
- **Handline:** Hose operated by hand
- **Hose Appliance:** Tools used with fire hoses to control flow
- **Hose Couplings:** Connect hoses to each other or a water source
- **Hose Lays:** How hoses are arranged from source to scene
- **Hose Loads:** Hose stacking methods for easy deployment
- **Nozzle:** Controls water stream from a hose
- **Pumper Truck/Attack Engine:** Vehicle with pump, hose, and water for fire attack
- **SCBA (Self-Contained Breathing Apparatus):** Air tank and mask for breathing in smoke-filled areas
- **Standpipe:** Built-in pipe system for supplying water inside buildings
- **Storz-Type Coupling:** Quick-connect hose ends without threads
- **Suction Hose:** Pulls water from static sources
- **Supply Hose:** Delivers water from source to pump
- **Threaded Couplings:** Screw-type hose connections
- **Turnout Gear:** Protective clothing worn during responses

## Education and Training

- **Codes and Standards:** Laws and guidelines for fire safety
- **Exit Drills In The Home (EDITH):** Practice home fire escape plans
- **Home Safety Surveys:** Checking homes for fire safety issues
- **NFPA (National Fire Protection Association):** Sets fire safety standards

## Fire Science

- **Backdraft:** Explosive ignition when oxygen re-enters a smoldering fire
- **Combustion:** Chemical process of burning
- **Conduction:** Heat transfer through contact
- **Convection:** Heat movement through air or gas
- **Decay Stage:** Fire slows as fuel runs out
- **Fire Tetrahedron:** Fire needs heat, fuel, oxygen, and a chemical reaction to burn
- **Fire Triangle:** Fire needs heat, fuel, and oxygen to start
- **Flashover:** Sudden full-room ignition
- **Fully-Developed Stage:** Maximum burning
- **Growth Stage:** Fire starts spreading and intensifying
- **Heat Transfer:** Movement of heat via conduction, convection, or radiation
- **Incipient Stage:** Fire just igniting
- **Light (Thermal) Energy:** Heat and light given off by fire
- **Mechanical Energy:** Energy from movement, sometimes causes sparks
- **Oxidation:** Reaction of fuel with oxygen
- **Pyrolysis:** Breakdown of material from heat before ignition
- **Radiation:** Heat traveling in waves
- **Smoke Colour:** Helps indicate type of material burning
- **Smoke Explosion:** Ignition of trapped fire gases

## Incident Command Structure

- **Chain of Command:** Order of authority
- **Division:** Personnel and resources assigned to a geographic location
- **Emergency Management Organization (EMO):** Coordinates emergency responses
- **Group:** Personnel and resources assigned to a specific task
- **Incident Action Plan (IAP):** Plan for managing an incident
- **Incident Command System (ICS):** Structured approach to managing emergencies
- **Incident Commander (IC):** Person in charge of an incident
- **Operations Function:** Part of ICS that manages tactical operations
- **Span of Control:** Number of people a leader can manage (usually 3–7)
- **Single Resource:** One unit (e.g., one engine or person)
- **Unity of Command:** Each person reports to only one boss

## Operations and Tactics

- **Advancing Hose:** Moving hose toward the fire
- **Attack Hose:** Used directly on the fire
- **Charged Hose:** Filled with water, ready to use
- **Defensive Operations:** Fighting fire from a distance
- **Establishing Command:** Identifying who's in charge
- **Evolution:** Planned firefighting tasks or maneuvers
- **Exposure:** Nearby object at risk of catching fire
- **Freelancing:** Acting without direction during an incident
- **Initiating Response:** Units are en route
- **Overhaul:** Checking for and putting out hidden fire
- **PAR (Personnel Accountability Report):** Roll call for safety
- **Rehabilitation:** Rest and recovery for firefighters
- **Salvage:** Protecting property during/after firefighting
- **Scene Size-Up:** Assessing what's happening at the scene
- **Size-Up:** First look and judgment of the fire scene
- **Staging Area:** Place where people/equipment wait near the scene

## PPE and Safety

- **Accountability Tag:** Tracks firefighter location and status
- **Bunker Gear:** Full protective firefighting gear
- **Carcinogens:** Cancer-causing substances from fire/smoke
- **Critical Incident Stress Management (CISM):** Mental health support after tough calls
- **Freelancing:** Acting without direction during an incident
- **PPE (Defensive):** Gear for indirect fire attack
- **PPE (Structural):** Gear for entering burning buildings
- **Rehab Officer:** Person monitoring health in rehab area
- **Safety Culture:** Shared values and actions for safety
- **Unacceptable Risk:** Danger too high to allow action

## Radio Language and Protocols

- **Arrival on Scene:** Unit has reached the incident
- **Cancelled Response:** Units not needed anymore
- **Clearing the Scene:** Leaving the scene, ready for next call
- **Incident Type:** Describes the emergency
- **Location Indicators:** Help identify where something is
- **Phonetic Alphabet:** A set of code words used to clearly communicate letters over radio
- **Priorities:** Life safety, property protection, incident control
- **Resource Request:** Ask for more units/equipment
- **Situation Report:** Update on the current status

## Water Supply

- **Dry Hydrant:** Pipe for pulling water from lakes or ponds
- **Portable Pump:** Moveable water pump
- **Portable Tank:** Temporary water holding tank at the scene
- **Pumper Truck/Attack Engine:** Vehicle with pump, hose, and water for fire attack
- **Static Water Supply:** Water from non-pressurized sources like ponds
- **Water Fill Station:** Spot for refilling water trucks
- **Water Shuttling:** Moving water from water source to scene









