

# Human Factors in the Wildland Fire Service L-180

Situation Awareness  
Communication  
Decision Making  
Teamwork  
Experience  
Perception v. Reality  
Stress  
Attitude



NFES 2986

Student Workbook  
SEPTEMBER 2008



## CERTIFICATION STATEMENT

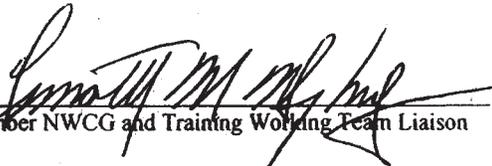
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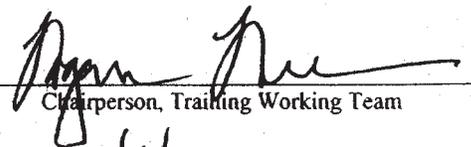
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Member NWCG and Training Working Team Liaison

Date 9-16-2008

  
Chairperson, Training Working Team

Date 9/4/08

# Human Factors in the Wildland Fire Service L-180

## Student Workbook SEPTEMBER 2008 NFES 2986

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ATTN: Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705.  
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# Unit 1: Working in the Wildland Fire Service

- Objectives:**
1. Agree that firefighters have a responsibility to reduce errors.
  2. Agree that firefighters have a responsibility to learn and improve their performance.
  3. Describe the relationship between situation awareness, reality, and perception.
  4. Describe the relationship between situation awareness, observation, and communication.
  5. Agree that firefighters have a responsibility to be aware of their situation.

*The ultimate purpose of the Wildland Fire Service is to protect life, property, and natural resources while engaging the forces of nature.*

## Human Factors

What aspects of your job involve “human factors”

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Some of the organizations shown in the video really take error reduction seriously. Is human error a problem for us in the Wildland Fire Service? How so?

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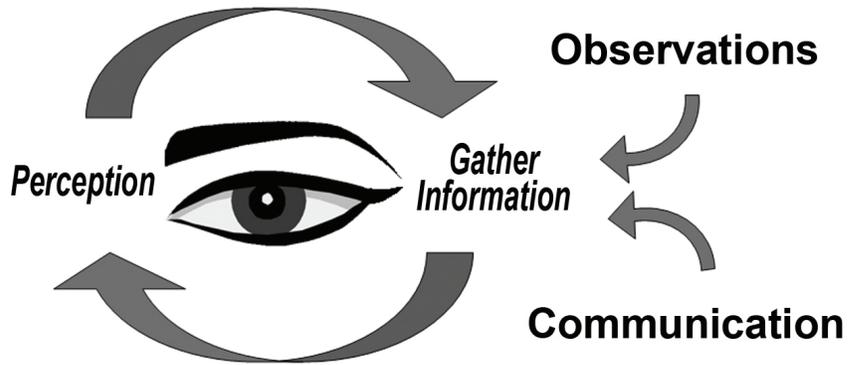
What steps can we take to plan for error—for when things go wrong?

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## Situation Awareness



### Exercise: Sizing Up the Situation

What are some of the information sources that you use to build your perception of a fire situation?

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## Unit 2: Communication

- Objectives:**
1. Recall common sender-receiver communication errors.
  2. Construct a direct statement from an indirect statement.
  3. Identify existing standard communication procedures and opportunities to initiate standard communication procedures in the work environment.
  4. Describe the Five Communications Responsibilities.
  5. Agree that firefighters have a responsibility to communicate.

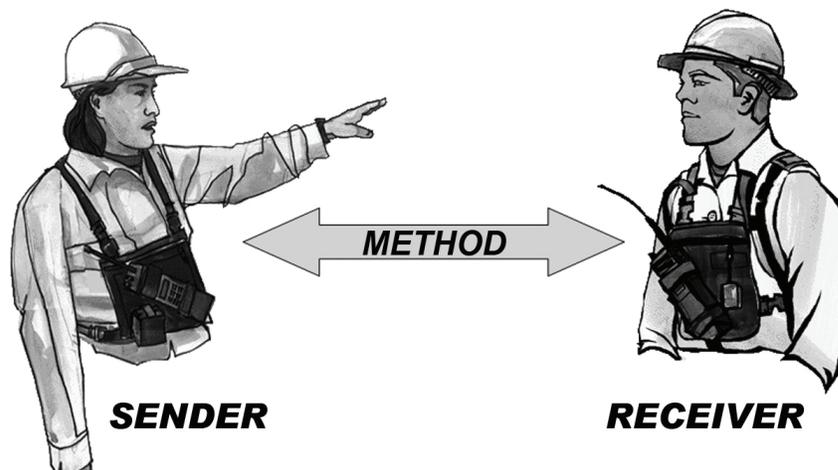
*Effective communication is essential for good situation awareness.*

### The Communications Toolbox

You have a variety of tools that you can use to become an effective communicator:

- Switching sender and receiver roles frequently.
- Using direct statements.
- Following standard communications procedures (SOPs).
- Redeeming the Five Communications Responsibilities.

### *Switching Sender and Receiver*



**Common Sender Errors**

No common frame of reference

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**Common Receiver Errors**

Locked in initial perception

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**Filters that affect senders and receivers**

Defending ourselves against looking foolish

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The following are important techniques for making sure that you listen effectively:

- Build a mental picture from the message as it is being delivered.
- Make sure that you are listening, not just waiting your turn to talk.
- Recognize that perceptions and filters affect the communication process.
- Be aware of the unstated message, and be willing to resolve inconsistencies between verbal and non-verbal signals.

## Direct Communication

### Exercise: Direct Statements

*Scenario 1: You are a Firefighter working on a 10 person crew that had a new Crew Boss assigned to it about a week ago. The new Crew Boss has been red carded for about 12 years, but has only gone to 3 or 4 fires a year during that time. You have been a wildland firefighter for only 4 years, but you have been to 25 or 30 fires each of those four years. The new Crew Boss has shown a tendency to want to make all the decisions for the crew, while hanging close to the crew vehicle. This is the second day for the crew on a local 30 acre fire. While building a piece of underslung fireline, you notice a spot fire below the crew and relay this information to the Crew Boss by radio. The Crew Boss responds by telling you to continue working the fireline while he tries to get another crew to go check out the spot fire. Your Crew Boss adds that it is still early in the day, before the burning period, and that the spot fire shouldn't get too active in the near future. You are uncomfortable with that response because you feel that the weather is a little warmer and drier than it has been on the previous two mornings and you don't see any other crews in sight.*

What is your reply to the Crew Boss? Phrase your reply as a direct statement.

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 **Exercise: Direct Statements—continued**

*Scenario 2: You are a Crew Boss of a handcrew that has been sent to a drop point on an indirect piece of fireline on a large, active fire in grass fuels. You have been told by your Division Supervisor to stage there with another handcrew in preparation for a firing operation to protect several houses that are adjacent to the indirect fireline. When you arrive at the drop point you observe that the fire is already posing a threat to the structures and that you have no good safety zone to accommodate 40 people and the vehicles. You estimate that you have about 30 minutes to implement a firing operation before the main fire's rate of spread makes that tactic unfeasible. You discuss the situation with Crew Boss of the other handcrew. They have been tasked with carrying fire in the opposite direction from the drop point. After talking with the other Crew Boss you contact the Division Supervisor by radio to relay this information. The Division Supervisor responds by telling you to wait at the drop point, until after he meets with the Operations Chief to discuss the situation, and then returns to your location to meet with you face to face.*

What is your reply to the Division Supervisor? Phrase your reply as a direct statement.

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## ***Standard Communication Procedures***

### **Exercise: Standard Communication Procedures**

What are some current communication SOPs that firefighters use?

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What other communication tasks could be done better if they were made into SOPs?

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### ***The Five Communications Responsibilities***

The Five Communications Responsibilities are your professional responsibility. If you take only one thing away from this course, make it the Five Communications Responsibilities.

- #1 Brief others
- #2 Debrief your actions—After Action Reviews (AARs)
- #3 Communicate hazards to others
- #4 Acknowledge messages and understand intent
- #5 Ask If You Don't Know

#### **Exercise: Intent**

What information does the person giving the assignment need to provide so that those individuals receiving the assignment will understand the intent?

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What possible problems could arise if the intent of the assignment is not understood?

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# Unit 3: Barriers to Situation Awareness

- Objectives:**
1. Identify hazardous attitude barriers and their impacts on situation awareness.
  2. Identify stress reaction barriers and their impacts on situation awareness.
  3. Agree that firefighters have a responsibility to minimize barriers.

*Uncontrolled barriers create inaccurate perceptions.*

## Physical Barriers

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## Internal Barriers

### *Attitudes*

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***Hazardous Attitudes***

- Invulnerability: “That would never happen to us.”
- Anti-authority: “Those morons, they don't know anything!”
- Impulsiveness: “What the heck! Let’s just do it.”
- Macho (competitive): “We’ll show them how the pros do it.”
- Resignation: “What’s the point? It will never happen anyway.”
- Complacency (casualness): “We’ve done this so many times that we could do it our sleep.”
- Escalation of commitment (target fixation, mission-itis): “We almost have it whipped; we can’t quit now.”
- Other attitudes: Sexist, racist, agency bias, and so on.

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 **Exercise: Recognizing Hazardous Attitudes**

What hazardous attitudes likely to occur during this time period or phase?

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What are indications that the attitude is present?

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What control measures could minimize or stop the problem?

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 **Self-Study Exercise: Hazardous Attitudes Awareness**

Of the hazardous attitudes discussed in class, select one or two that you recognize as having experienced personally, or that you might tend to exhibit.

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Describe the indications that you are exhibiting that attitude.

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What do you think could reduce or dispel the attitude? What positive attitude might you be able to substitute for this hazardous attitude?

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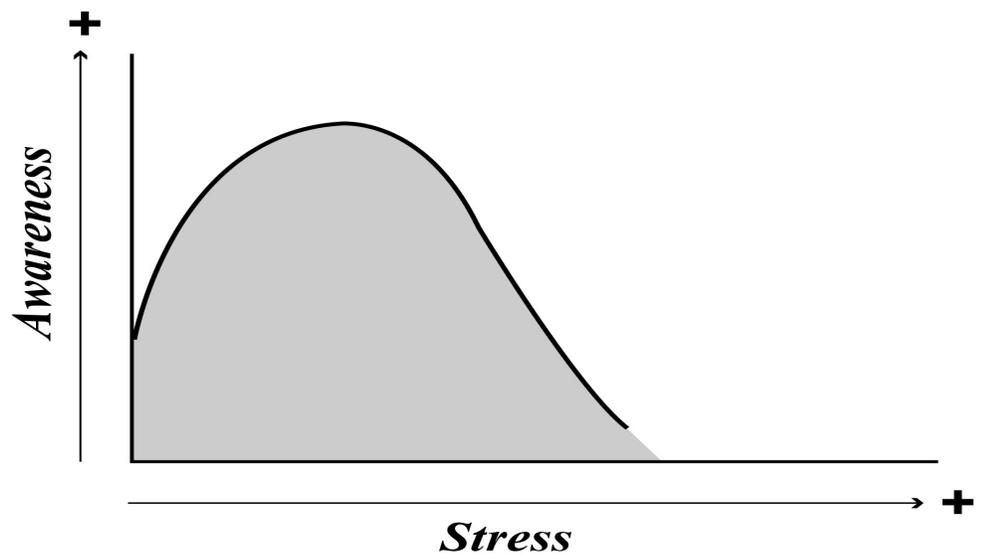
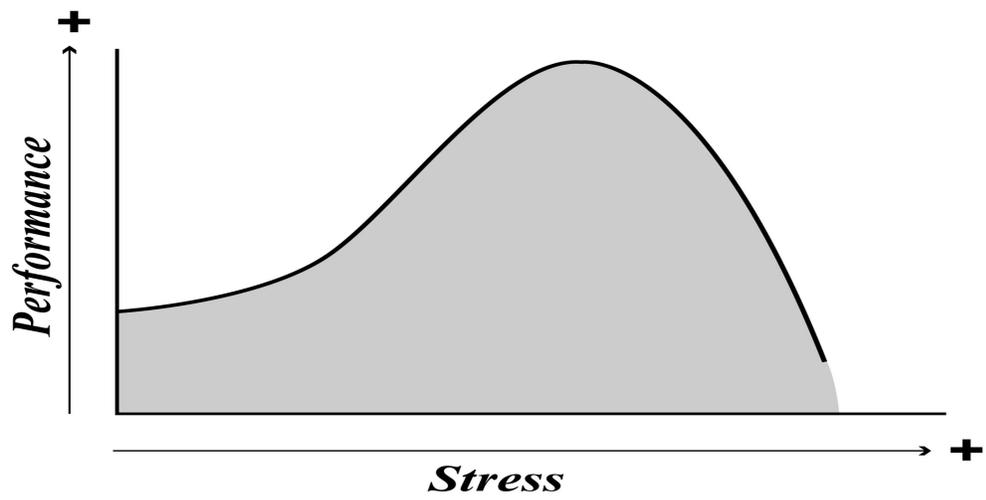
### Understanding Stress

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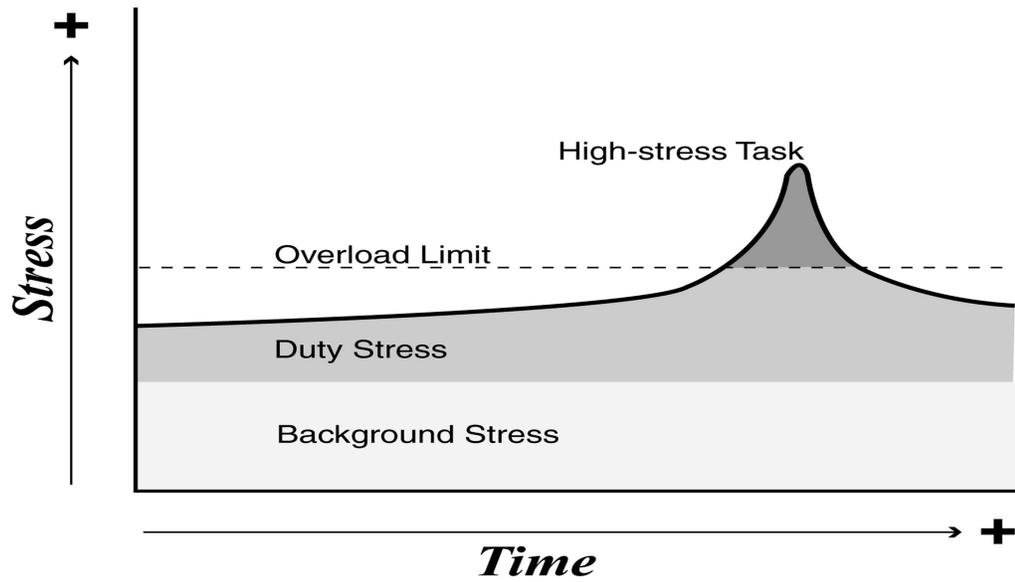
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### The Stress Curve



### Cumulative Stress



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 **Exercise: Anticipating Stressful Situations**

What operations or work situations do you find to be the most stressful?

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What can you do to prepare for these situations so that the stress would be reduced?

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***Stress Reactions***

**Physical**

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**Mental**

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**Behavioral**

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 **Self-Study Exercise: Stress Reaction Awareness**

Think back to the last time you were seriously stressed. How did it affect you? What are the beginning indications that you are starting to feel stressed? Do you get irritable? Do you find it hard to concentrate? Do you quit communicating? Come up with indications that your stress reactions are increasing.

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What are your reactions when you are feeling a little bit of stress—just when you are beginning to feel uncomfortable? For example, you just worked a double shift and now you will have to eat your sixth MRE in a row because spike camp didn't figure you into to the hot meal supply order.

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Next, what are your reactions when the stress level increases a notch? For example, you have worked hard on a piece of hand line that is holding the fire, but you are ordered to abandon it due to a change in plans.

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Last, what are your reactions when your stress level is pegging at maximum? For example, you are building line downhill in grass and light brush fuels, during the middle of the burning period.

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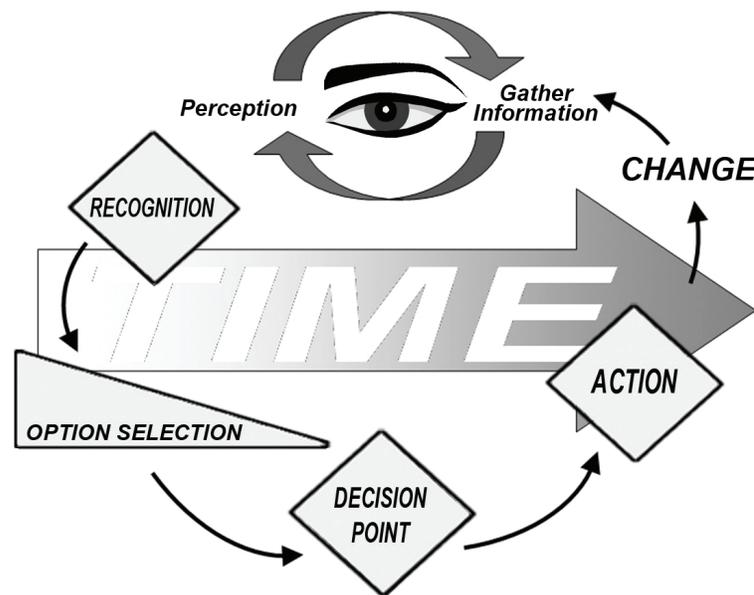
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## Unit 4: Decision Making

- Objectives:**
1. Describe the process of preplanning and its role in decision making.
  2. Describe the situation awareness self-check tool and its role in decision making.
  3. Agree that firefighters have a responsibility to minimize risk.

### Preplanning and Decision Making

*You never run out of options, you just run out of time.*



**The Decision Cycle**

- Situation Awareness—develop the most accurate picture of reality
- Recognition—focus on what is important and filter out what is unimportant
- Option Selection—weigh risks and opportunities and select course of action
- Decision Point—initiate a course of action
- Action—make sure the course of action is carried out and assess the changes resulting from those actions in order to update situation awareness

 **Exercise: Preplanning**

Using a checklist is a common way to conduct preplanning activities. What are some of the preplanning checklists that are available to us?

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The video narrator mentioned how you could set up recognition trip wires during the preplanning process. What are trip wires?

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Like any other skill, preplanning can be learned. What are some techniques that would allow all crewmembers to get involved and begin to practice the preplanning process?

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## Risk Management Process

The risk management process offers a valuable tool that can help you in important ways:

- Making sure that the critical factors of the fireline work environment are considered during preplanning.
- Providing a framework to address risks in the fireline environment.

The Risk Management Process is an important tool for preplanning. This job aid can be found in the Incident Response Pocket Guide in the green pages.

### ***Step 1 Situation Awareness***

Know what is going on around you. This step obviously correlates to “Situation Awareness” in the decision cycle. You can counter this barrier by the doing the following:

- Make a decision to stay aware of your situation and continue to do it!
  - Establish an ongoing two-way dialog between you and your coworkers about their perception of the situation.
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### ***Step 2 Hazard Assessment***

Identify the hazards in your work environment. This step supports “Recognition” in the decision cycle. Assess potential hazards by doing the following:

- Use the Look Up/Down/Around indicators to estimate potential fire behavior hazards.
  - Use the Watch Outs to identify high-risk tactical hazards.
  - Identify other work environmental hazards that may exist.
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### ***Step 3 Hazard Control***

Determine the best way to minimize or control the risk from the hazards you will encounter while getting the job done. This step supports “Option Selection” in the decision cycle. Every firefighter has the responsibility to minimize the risk of known fire hazards by doing the following:

- Establish an anchor point before beginning operations on the fireline.
  - Establish an L.C.E.S. system before beginning operations on the fireline.
  - Establish any other hazard controls that may be necessary.
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### ***Step 4 Decision Point***

Decision Point—the “Go, No-Go” point for an individual making a tactical decision involving some degree of risk. This step obviously correlates to “Decision Point” in the Decision Cycle and serves as a last check before you implement your course of action.

Perform a “Go, No-Go” check of your situation by answering the following questions:

- Are controls in place for identified hazards?
  - Are selected tactics based on the expected fire behavior?
  - Have instructions been given and understood?
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### ***Step 5 Evaluate***

Evaluate—assess changes in your situation. This step completes the Decision Cycle so that you keep your situation awareness current at all times.

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# Unit 5: Team Cohesion

- Objectives:**
1. Describe the relationship between teamwork and the human performance concepts discussed in the previous lessons.
  2. Agree that firefighters have a responsibility to work as a member of a team.

*Cohesive teams are more creative and adaptable  
when dealing with complex situations.*

## Teamwork

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## Skills for Team Integration

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## Guidelines for Followers

As a follower, you have several personal responsibilities to the team:

- Develop your communication skills.
  - Redeem the Five Communication Responsibilities.
- Commit yourself to team results.
  - Base your actions on the mission and the best interests of the team.
- Be accountable for your actions.
  - When you make mistakes, act quickly and honestly to learn from them and move on.
- Become technically proficient.
  - Learn your job, develop a work ethic, and observe your environment.

### Exercise: Followers' Top 10 Team Contributions

Identify three specific behaviors rooted in human factors concepts that will enable you, as a follower, to make valuable contributions to the team.

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3. \_\_\_\_\_  
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