Objectives

At the end of this module, participants will be able to:

1) Define the term “Improvised Explosive Device” (IED)

2) Identify the components of an IED

3) Describe blast, thermal, and fragmentation effects

4) Explain factors to take into consideration when responding to a potential IED
Identify a partner (teams of 2)

Team member #1 is the "Identifier"

Team member #2 is the "Drawer"

Team member #1 will have a 60 second view of the IED and 5 min to describe the IED to team member #2 for them to draw

Team members will have their backs toward each other

Compare results

Team members switch tasks and repeat

Compare results

Exercise Your Brain
IED Definition

A device placed or fabricated in an improvised manner incorporating destructive, lethal, noxious, pyrotechnic, or incendiary chemicals and designed to destroy, incapacitate, harass, or distract. It may incorporate military stores, but is normally devised from nonmilitary components.

Department of Defense Joint Publication 1-02
Dictionary of Military and Associated Terms
Why Use IEDs?

- Proven effective
- Instructions and materials readily available
- Inexpensive
- Psychological effect
IED and Explosive Effects Fundamentals

IED Components: “PIES”

- **Explosive**
- **Initiator**
- **Switch**
- **Power source**
IED and Explosive Effects Fundamentals

Power Source

- AA batteries
- Battery packs
- Lightning bolt

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IED and Explosive Effects Fundamentals

Initiator

Commercial or Military:

Improvised:
Explosives

Low explosive:
• Chemical compound or mixture designed to deflagrate (burn rapidly)
• Generally requires confinement to explode

High explosive:
• Chemical compound or mixture capable of supporting or sustaining a detonation wave
Explosives
IED and Explosive Effects Fundamentals

Commercial/Military Explosives

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Homemade Explosives (HME)

- Easily manufactured
- Ingredients readily available
- Easily initiated
Switch
Switch Functioning

Arming Switch

Firing Switch

Power Supply

Test Light

Initiator
Switch Functioning

Arming Switch

Firing Switch

Power Supply

Test Light

Initiator

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Switch Functioning

Arming Switch

Firing Switch

Power Supply

Test Light

Initiator
"PIES" = IED

No "P" = No IED
IED and Explosive Effects Fundamentals

**IED Containers**

- Provide concealment
- Provide transport
- Increase lethality
Which Items Could Contain an IED?
Identify the “PIES”

Shoe Bomber – Richard Reid

• **Power** = Heat (match)
• **Initiator** = Improvised TATP detonator
• **Explosives** = Plastic explosive (PETN) and detonation cord
• **Switch** = Richard Reid and time fuse
Explosive Effects

- **Blast**: Broken, crushed, or deformed items
- **Thermal**: Burned, charred, or deformed items
- **Fragmentation**: Shrapnel from bomb parts or debris
IED and Explosive Effects Fundamentals

Blast

[Diagram of blast effects on a tree and building]
Example 1: Secondary Blast Effects

- Reflection
- Focusing
- Shielding
Example 2: Secondary Blast Effects
Thermal Effects

Temperatures reach thousands of degrees

- High explosives – short duration
- Low explosives – long duration
IED and Explosive Effects Fundamentals

Fragmentation

**Primary** (1000s of feet per second)
- Container
- Munitions case
- Shrapnel

**Secondary** (100s of feet per second)
- Includes primary fragmentation
- Debris located near the seat of the blast
Response Considerations

• Secondary devices and explosions
• Multiple simultaneous devices
Basic Precautions

- Do not touch suspicious items
- Notify proper authorities
Explosive Hazards

- Heat
- Shock
- Friction
- Static
Evacuation Considerations

- Communicate the need for evacuation
- Determine approximate “evacuation distance”
- Conduct evacuation away from the threat
- Prevent others from approaching
IED and Explosive Effects Fundamentals

IED Identification Exercise #1 (15 sec)

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- Identify a partner (teams of 2)
- Team member #1 is the “Identifier”
- Team member #2 is the “Drawer”
- Team member #1 will have 15 seconds to view the IED and 5 min to describe the IED to team member #2 for them to draw
- Team members will have their backs toward each other
- Compare results
- Team members switch tasks and repeat
- Compare results

Exercise Your Brain
Summary

Are you able to:

• Define the term “Improvised Explosive Device” (IED)?
• Identify the components of an IED?
• Describe blast, thermal, and fragmentation effects?
• Explain factors to take into consideration when responding to a potential IED?
Questions?
For more information visit:
http://www.dhs.gov/obp

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