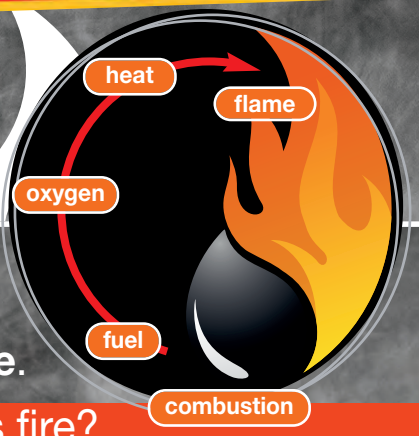
1 Defining Fire

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some ways to start a fire intentionally?
2 What can cause a fire?

What is fire?



We all know that **fire** produces **flames** and **smoke**.

But what causes fire?

Fire is the byproduct of **combustion**. This process requires enough **heat** to **ignite** a substance. Often, this is just a small **spark**. The process also needs a **fuel** that is capable of burning. The fuel must undergo **oxidation** to **burn**. That is, it must combine with **oxygen**. This combination of heat, fuel, and oxygen is what **lights** the fire. Then, the fire produces more heat, and the reaction continues.

Of course, some materials are more **flammable** than others. That's why matches and lighters contain particular fuels. Those substances are designed to ignite quickly and easily.

Reading

2 Read the textbook excerpt. Then, choose the correct answers.

1 What is the main idea of the excerpt?
- **A** fundamental methods for fighting fires
- **B** the most dangerous fuels for starting fires
- **C** the chemical process that produces fires
- **D** a comparison of different types of fires

2 Which of the following does fire NOT produce?
- **A** heat
- **B** flames
- **C** smoke
- **D** oxygen

3 What is true about fuels?
- **A** Some of them are more flammable than others.
- **B** They cannot combine with oxygen.
- **C** They are one result of fire.
- **D** Some fires start without them.

Vocabulary

3 Match the words (1-7) with the definitions (A-G).

1 __ heat
2 __ fuel
3 __ light
4 __ flame
5 __ spark
6 __ oxygen
7 __ combustion

- **A** a gas that is present in the air
- **B** a substance that can be combined with heat and oxygen to become energy
- **C** the perceptible high temperature that results from fire
- **D** the visible part of a fire in the form of rapidly moving light
- **E** the chemical reaction that occurs when heat, oxygen, and fuel are combined
- **F** to bring the necessary elements together to start a fire
- **G** a small particle of burning fuel that starts a fire

4 **Fill in the blanks with the correct words or phrases from the word bank.**

WORD BANK

fire smoke oxidation flammable burned ignite

1 _____ is the combination of oxygen and another substance.
2 The man started a(n) _____ in the fireplace to heat the house.
3 _____ substances are dangerous when they are stored near open flames.
4 Neighbors couldn't see the flames, but they could see the _____ .
5 The family watched in horror as their house _____ .
6 A lighter is designed to _____ a fuel easily.

5 **Listen and read the textbook excerpt again. Why are flammable substances useful?**

Listening

6 **Listen to a conversation between two students. Mark the following statements as true (T) or false (F).**

1 __ The man defines oxidation incorrectly.
2 __ The woman is confused about the purpose of oxygen in combustion.
3 __ The man identifies several common flammable liquids.

7 **Listen again and complete the conversation.**

Student 1: I'm confused. What's the difference between oxidation and **1** _____ ?
Student 2: Well, oxidation **2** _____ _____ combustion.
Student 1: So, oxidation is when the heat combines **3** _____ _____ _____ ?
Student 2: Not quite. It's when **4** _____ combines with the fuel.
Student 1: Oh, right. But the combination still needs **5** _____ _____ to ignite the fuel.
Student 2: Exactly. And don't forget. **6** _____ _____ ignite more easily than others.

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

USE LANGUAGE SUCH AS:

I'm confused.
It still needs ...
Don't forget ...

Student A: You are a student. Talk to Student B about:

- the process of creating a fire
- a part of the process that confuses you
- an explanation of the process

Student B: You are a student. Talk to Student A about the process of creating fire.

Writing

9 **Use the conversation from Task 8 to fill out the quiz on fire.**

Quiz #1 Elements of Fire

Please describe how fire occurs.

A fire cannot start without the following factors: _____
_____

_____ occurs when _____
_____ .

_____ occurs when _____
_____ .

Some fuels are more flammable than others. That's why _____ .

1 Fuel Classifications

Get ready!

1 Before you read the passage, talk about these questions.

1 What are some types of fuel?

2 Why is it important for firefighters to know what kind of fuel is burning?

Know Your Fuel Classifications

Fires have different classifications based on the fuel that is burning. The classifications help determine what to use to put out a fire. Trying to put out flames with the wrong substance can make a fire worse. There are five different classifications.

Class A fire: Fuel is solid combustible materials that are not metals.
- Fuels include **wood**, **plastic**, trash, cloth, etc.

Class B fire: Fuel is flammable liquids.
- Fuels include gasoline, oil, grease, etc.

Class C fire: Fuel is energized **electrical** equipment.
- Fuels include anything that plugs into an electrical outlet

Class D fire: Fuel is combustible **metals** or **alloys**.
- Fuels include potassium, sodium, aluminum, etc.

Class K fire: Fuel is **cooking fuels**.
- Fuels include cooking oils (vegetable or animal) and fats

Reading

2 Read the textbook excerpt. Then, mark the following statements as true (T) or false (F).

1 __ Fires are classified by the fuel that is burning.

2 __ A Class C fire contains flammable liquids.

3 __ Burning cooking fuels are classified as a Class K fire.

Vocabulary

3 Fill in the blanks with the correct words or phrases from the word bank.

WORD BANK

Class B plastic electrical
cooking fuel alloy Class K

1 A damaged power cord on the television resulted in a(n) _____ fire.

2 The firefighters responded to a(n) _____ fire at a gas station.

3 Bronze is a(n) _____ which is composed of the metals tin and copper.

4 John panicked when the _____ he was using to fry fish caught on fire.

5 Firefighters determined the Class A fire was a result of burning _____ .

6 Susan had a _____ fire at her restaurant, but it was put out quickly.

4 Read the sentences and choose the correct words or phrases.

1 Knowing fuel **plastics / classifications** is important for firefighters.
2 Since **Class A / Class D** fires burn solids, they usually leave ash behind.
3 Forest fires spread quickly since **alloy / wood** is highly flammable.
4 Never use water to put out a **Class C / plastic** fire since it conducts electricity.
5 Large pieces of **Class B / metal**, such as iron beams, do not usually pose a fire risk.
6 A **Class D / Class K** fire is more likely to happen in a lab or industrial setting.

5 Listen and read the textbook excerpt again. What are examples of Class B fuels?

Listening

6 Listen to a conversation between an instructor and a trainee. Choose the correct answers.

1 What is the purpose of the conversation?
A to describe the different classifications of fuel
B to explain how to remember various fire classes
C to decide the correct way to put out types of fires
D to discuss classifications of flammable liquids

2 What will most likely happen next?
A the woman will ask the man to list Class K fuels
B the man will describe the different Class B fuels
C the woman will correct the man about Class C fuels
D the man will clarify about the types of Class A fuels

7 Listen again and complete the conversation.

Instructor: Let's go over some **1** _____ _____ .
Tell me what type of fuel burns in a Class A fire.
Trainee: That would be solid fuels that aren't **2** _____ .
Instructor: Such as ... ?
Trainee: Things like **3** _____ , _____ , or trash.
Instructor: Right. How about fuels for **4** _____ _____ fires?
Trainee: Those are flammable liquids, such as **5** _____ _____ and fats.
Instructor: The first part is right, the second part is wrong.
Trainee: Oh, sorry! I gave examples for **6** _____ _____ fuels. I meant to say gasoline, oil, or grease.

Speaking

8 With a partner, act out the roles below based on Task 7. Then, switch roles.

USE LANGUAGE SUCH AS:
Let's talk about ...
That would be ...
Now, how about ...

Student A: You are an instructor. Talk to Student B about:
- types of fuel classifications
- examples of fuels
- an incorrect answer

Student B: You are a trainee. Talk to Student A about different fuel classifications.

Writing

9 Use the conversation from Task 8 to fill out the trainee's notes.

Types of Fuel Classifications

A Class A: _____

B Class B: _____

C Class C: _____

D Class D: _____

K Class K: _____

Glossary

ALS unit [N-COUNT-U6] An **ALS** (advanced life support) **unit** is a company with the training to conduct major emergency medical care.

apartment [N-COUNT-U10] An **apartment** is a residential unit designed for one person or family to live in, and exists in a building with other similar units.

apparatus [N-COUNT-U6] An **apparatus** is a vehicle that is used for emergency operations, and may carry equipment for fire suppression, search and rescue, or medical response.

aptitude [N-UNCOUNT-U3] An **aptitude** is a natural talent or ability for something.

ARFF unit [N-COUNT-U6] An **ARFF** (aircraft rescue and firefighting) **unit** is a specialty unit that uses aircraft to conduct fire suppression and rescue operations.

articulate [ADJ-U3] If someone is **articulate**, he or she speaks precisely and understandably.

asphyxiation [N-UNCOUNT-U13] **Asphyxiation** is the inability to breathe, which can very quickly lead to death.

attic [N-COUNT-U11] An **attic** is the story at the top of a building immediately below the roof.

attitude [N-UNCOUNT-U14] An **attitude** is the way that someone feels or behaves towards something.

balcony [N-COUNT-U11] A **balcony** is an outdoor area on a surface that extends from an upper story of a building.

barn [N-COUNT-U10] A **barn** is a structure where animals and farm supplies are kept.

basement [N-COUNT-U11] A **basement** is the story at the bottom of a building, below ground level.

battalion [N-COUNT-U5] A **battalion** is a division within a fire department that includes multiple companies in a particular area.

BLS unit [N-COUNT-U6] A **BLS** (basic life support) **unit** is a company with the training to conduct simple emergency medical care.

bolt cutters [N-COUNT-U9] **Bolt cutters** are a handheld tool that can cut through locks, security bars, and other metal objects.

boot [N-COUNT-U7] A **boot** is a thick covering worn to protect the feet and lower legs.

brush fire response unit [N-COUNT-U6] A **brush fire response unit** is a specialty unit that is equipped to handle ground fires.

buddy [N-COUNT-U15] A **buddy** is someone assigned as a partner to someone else so that they can watch each other and ensure each other's safety.

burn [N-COUNT-U13] A **burn** is an injury to the skin that is caused from exposure to fire.

burn [V-I-U1] To **burn** is the process of being consumed in a fire.

calm [ADJ-U3] If someone is **calm**, he or she is not angry or upset.

career [ADJ-U5] If a job is a **career**, it is related to the way that a person makes money to live on.

carry-all [N-COUNT-U9] A **carry-all** is a large square of sturdy material that is used to move loads of debris, and is usually carried by two people.

ceiling [N-COUNT-U11] A **ceiling** is the interior surface at the top of a room.

chain of command [N-COUNT-U5] A **chain of command** is the established order in which members of an organization have authority, and usually includes one chief officer at the top and many workers or members at the bottom.

checklist [N-COUNT-U15] A **checklist** is a list of actions to be completed or items to be confirmed.

chemical [ADJ-U2] If something is **chemical**, it is related to the interaction of different substances.

coat [N-COUNT-U7] A **coat** is an article of clothing worn to protect the arms and upper body.

combination unit [N-COUNT-U6] A **combination unit** is a company that performs the duties of multiple types of companies, such as both engine and truck.

combustion [N-UNCOUNT-U1] **Combustion** is a chemical reaction that occurs when heat, oxygen, and a fuel are combined, producing fire.

commercial [ADJ-U10] If something is **commercial**, it is related to the places where people conduct business.

company [N-COUNT-U6] A **company** is a division within a fire battalion that includes a team of firefighters assigned to a particular apparatus and function, under the command of a company officer.