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# Tutor support material

Entry Level

## Edexcel Entry Level Certificate in Science (8938)

## Unit 7: There's One Earth

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# Introduction

This tutor support material accompanies the Edexcel Entry Level Certificate in Science specification and has been designed to help teachers prepare for first teaching of the qualification.

This document is for Unit 7: There's One Earth, and includes worksheets to aid the teaching of this unit.

Additional documents are available for all other units within the Edexcel Entry Level Certificate in Science. There is also a Teacher's guide document available on the Edexcel website, which gives more information on specialist language, assessment of practical skills and information on *How Science Works*.

Attention is drawn to the need for safe practice when students carry out laboratory experiments or observe demonstrations. Centres are responsible for the overall risk assessment of experimental work undertaken by learners. Reference must be made to COSHH regulations and any specific local education authority restrictions.

Relevant advice can be obtained from the following publications.

- *CLEAPSS Laboratory Handbook* (available from CLEAPSS School Science Service, website www.cleapss.org.uk)
- *Control of Substances Hazardous to Health Regulations* (HSE, 2005) ISBN 0717629813
- *Hazcards* (2004 update available from CLEAPSS School Science Service)
- *Topics in Safety, Third Edition* (ASE January, 2001) ISBN 0863573169

# Worksheets for

# Unit 7: There's One Earth

## Oil

Oil is found in large amounts underground.

Oil is formed from decayed sea creatures.

Oil takes millions of years to form.

We can get many useful substances from oil including:

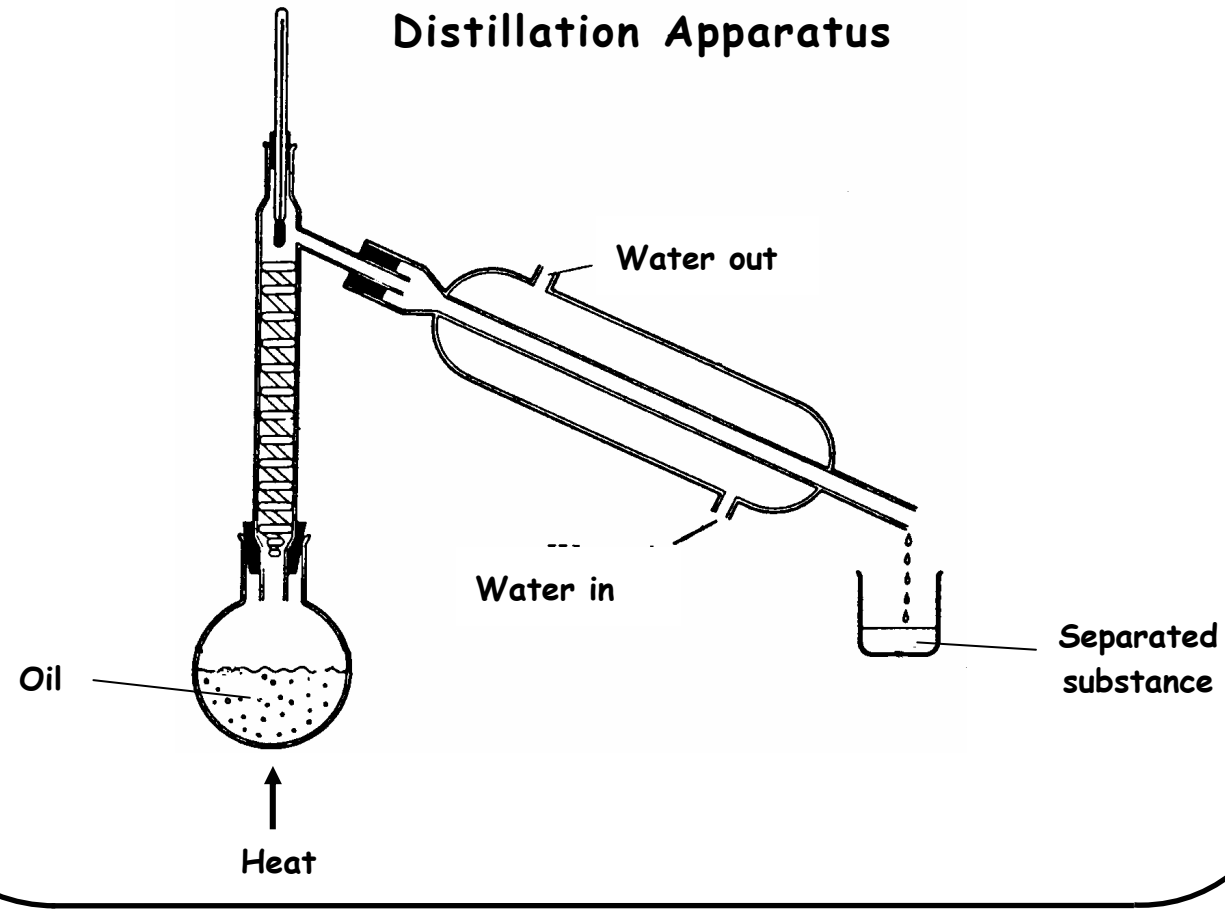
- fuels (gas, petrol, diesel oil)
- substances that can be used to produce plastics, paints, drugs and dyes
- building materials, eg bitumen (tar) for roads.

Some of these are separated out from the oil.

Distilling the oil separates them.

Here is a diagram of the apparatus used.

Your teacher will show you this.



# Burning fuels — 1

When a fuel burns, it reacts with oxygen in the air.
This reaction is called combustion.
Heat and light are given out.

**Class activities**

1. List some common fuels _____

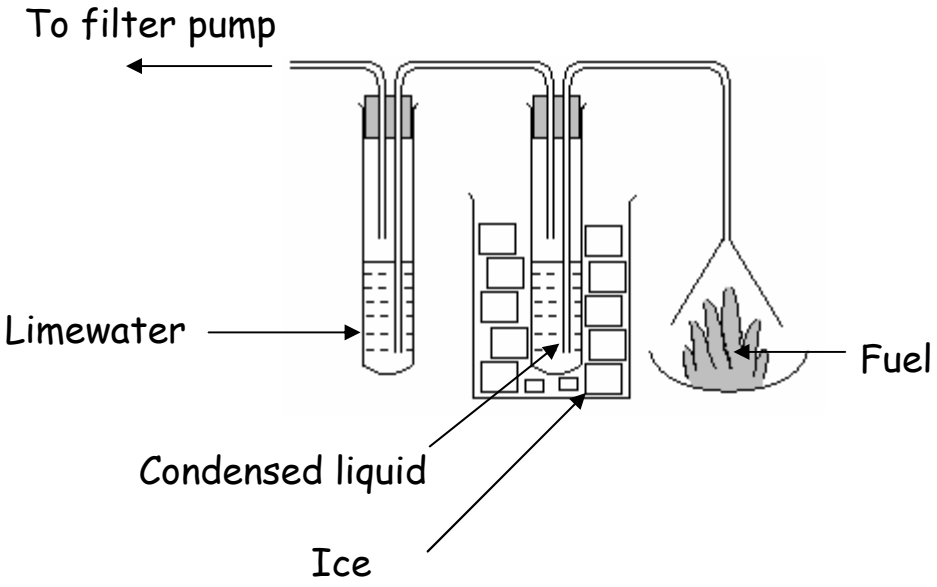
_____

_____

_____

2. Make a poster to show some fuels.

**A demonstration to find out whether carbon dioxide and water is produced when a fuel burns**




**What your teacher does**

1. Set up the apparatus as shown.
2. Place a small amount of fuel in the dish.
3. Start the filter pump.
4. Ignite the fuel.

# Burning fuels — 2

Complete the sentences on this page.
Use the words in this box.
Some words may be used more than once.

| | | |
|---|---|---|
| **carbon dioxide** | **white** | **blue** |
| **cloudy** | **water** | **heat** |

The filter pump draws the gases from the burning fuel through the apparatus.

The limewater turns from clear to _____.

This shows that _____is made.

A sample of the condensed liquid is added to dry copper sulphate and it turns from _____to _____.

This shows that _____ is made when the fuel is burnt.

- Most fuels produce water when they burn.
- Combustion makes carbon dioxide.

Complete the word equation to show what happens when a fuel is burned.

**fuel + oxygen** → _____ **+**

_____

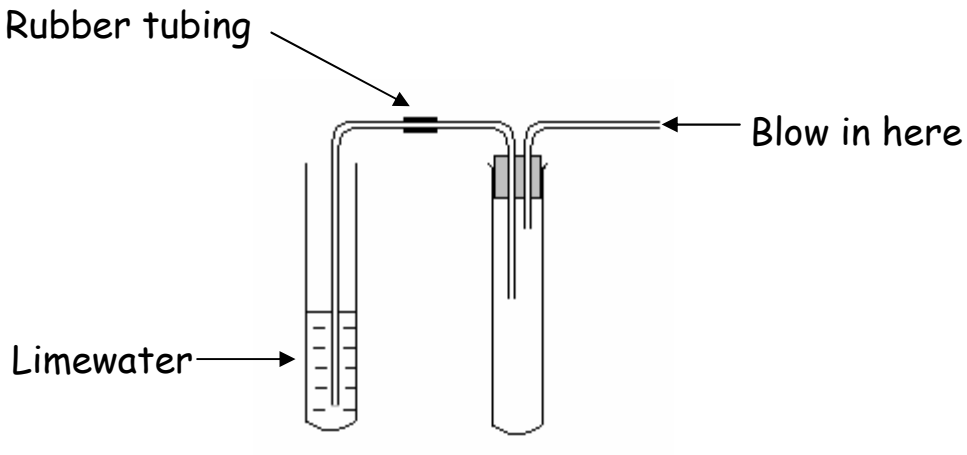
The most important thing that combustion produces is not a material. It is not shown in the equation.

What is it? _____ .

# Experiment to test for carbon dioxide

**What you need**

Two test tubes.
Rubber bung with two holes.
Three 'L' shaped glass rods.
Limewater.
Rubber tubing.




**What to do**

1. Set up the apparatus as shown.
2. Blow in the tube as shown.
   The carbon dioxide gas that you breathe out will be blown through the empty test tube into the lime water.
3. Write down what happens to the lime water.

**Complete the following sentences using the words in the box.**

| | |
|---|---|
| **cloudy** | **particles** |
| **dioxide** | |

When carbon _____ passes through limewater, the limewater becomes _____.

A precipitate is formed when small _____ are suspended in a liquid.



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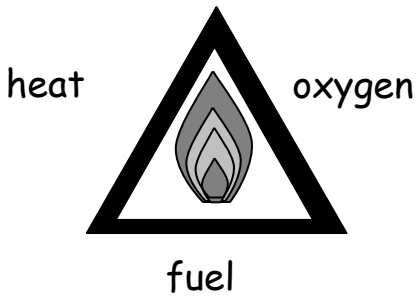
# Fires

Three things are needed for fire.

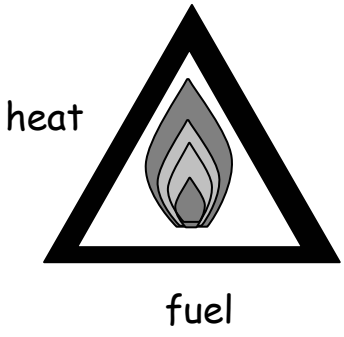
**heat** **fuel** **oxygen**

These can be shown on a fire triangle.




Take one of these away and the fire goes out.

Look at this diagram. The fire will not burn.




What is missing? _____

# Fighting fires — questions

What should you do if a fire starts at school?

_____

_____

_____

_____

_____

What should you do if a fire starts at home?

_____

_____

_____

_____

_____

A fire starts in a room. Should you leave the doors and windows open or closed (think of the fire triangle)? _____

Why? _____

_____

What should you do if you are in a room where the smoke is very thick?

_____

_____

_____

What should you do if your clothes catch fire?

_____

_____

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# Fire extinguishers — 1

There are four different types of fire extinguishers.

They are listed in the boxes below and on the next page.

Write down the colour of each type of extinguisher.

Write down the location of each type of extinguisher in your school.

Draw a diagram of each type of extinguisher in the space provided.

Write these words next to your diagrams to show which fire extinguishers can be used on fires that involve

**flammable liquids** **high voltages** **wood and textiles**

**Water fire extinguisher**

**Colour: _____**

**Location: _____**

**Foam fire extinguisher**

**Colour: _____**

**Location: _____**

# Fire extinguishers — 2

**Dry powder fire extinguisher**

**Colour: _____**

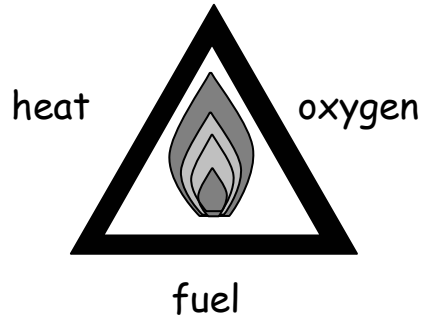
**Location: _____**

**Carbon dioxide fire extinguisher**

**Colour: _____**

**Location: _____**

# Fire blankets




Use the fire triangle to complete the following sentences.

To put out a fire _____ or _____

or _____ must be removed from the fire.

A fire blanket removes _____ from the fire.

List all the places where fire blankets are kept in your school.

# Putting fires out — 1

Your teacher will demonstrate an experiment on burning fuels.

**What your teacher needs**

Goggles.
A heat resistant mat.
A beaker of sand.
A metal tray.
A few wood shavings.

**What your teacher will do**

1. Place the metal tray on the heat resistant mat.
2. Put a few wood shavings on the tray.
3. Set fire to the wood shavings.
4. Pour some sand over the burning shavings.
   The fire should go out.
5. Leave it to cool down.

Write on the fire triangle to show which two things were present.

Choose from air, fuel, and heat.

Is it easy to clean up after the fire? _____.

Would you use sand to put out a large fire? _____.

Why?

_____

_____.

# Putting fires out — 2

Your teacher will demonstrate another experiment on burning fuels.

**What your teacher needs**

Goggles.
A heat resistant mat.
A squeezy bottle of water.
A metal tray.
A few wood shavings.

**What your teacher will do**

1. Place the metal tray on the heat resistant mat.
2. Put a few wood shavings on the tray.
3. Set fire to the wood shavings.
4. Gently squirt water over the burning shavings.
   The fire should go out.
5. Leave it to cool down.

Why did the fire go out? _____

_____.

Did you see any steam? _____.

How did the water remove the heat side of the fire triangle?

_____

_____.

Write on the fire triangle to show which two things were present.
Choose from air, fuel, and heat.

# Putting fires out — 3

Is it easy to clean up after the fire? _____.

Would you use water to put out a large fire? _____.

Why?

_____

_____.

We need _____and

_____and

_____to make a fire burn.

Write the missing words on the fire triangle to make a fire burn.

# Word search

Carbon

Dioxide

Distil

Extinguisher

Foam

Fuel

Heat

Oil

Oxygen

Plastic

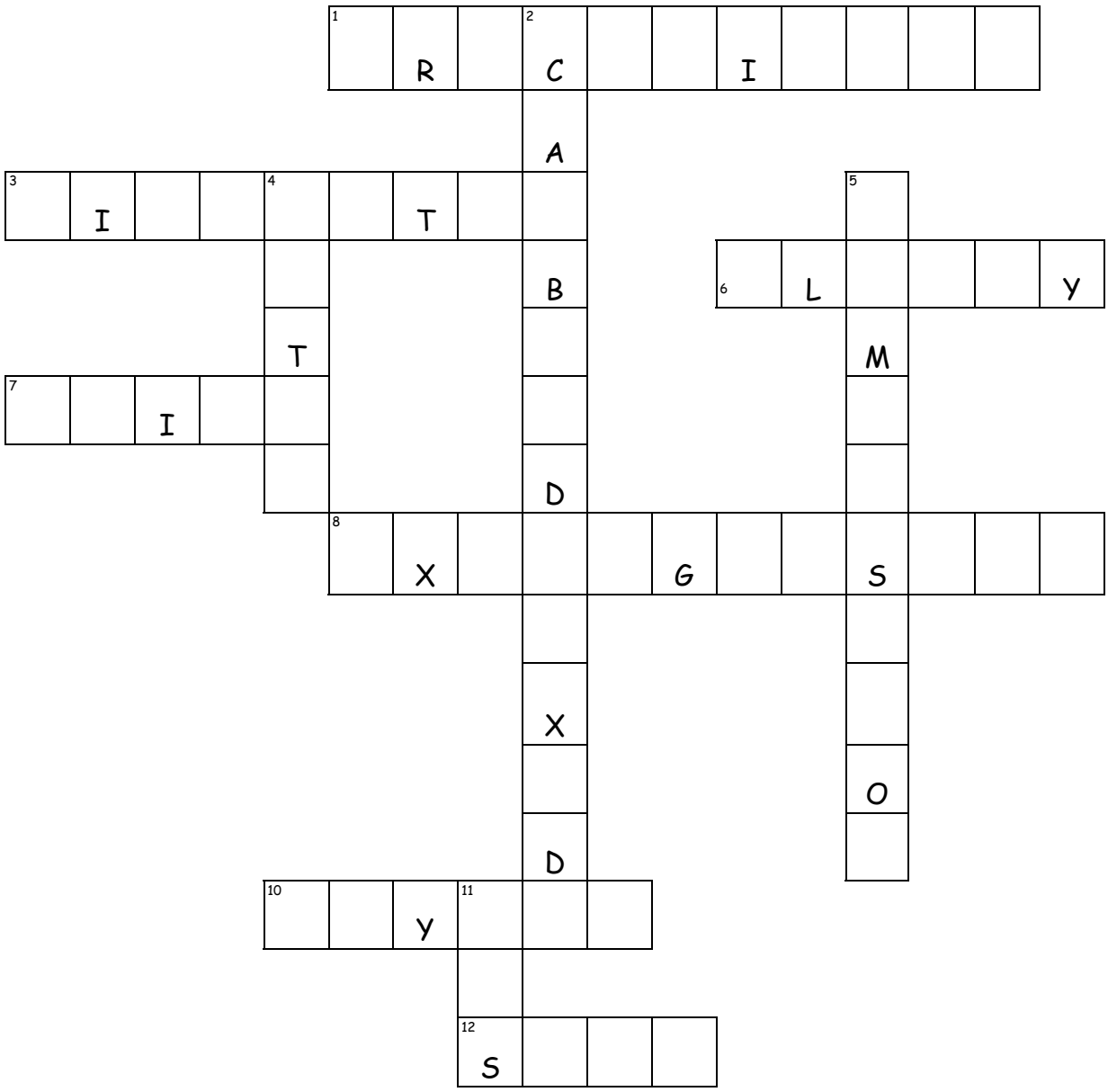
Powder

Steam

Water

| O | I | C | A | R | B | O | N | D | X | I | E |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | I | L | D | I | O | X | I | D | E | P | X |
| S | A | L | H | G | F | M | E | B | L | T | T |
| D | T | O | X | Y | G | E | N | Z | F | J | I |
| I | Y | U | F | N | H | M | K | L | F | P | N |
| S | A | S | C | I | T | S | A | L | P | N | G |
| T | B | U | F | T | A | G | E | M | P | X | U |
| I | Y | W | A | T | E | R | S | F | O | Y | I |
| L | H | E | A | D | E | F | F | C | W | A | S |
| O | H | Y | F | V | D | L | U | R | D | I | H |
| I | A | P | F | O | A | M | E | Y | E | O | E |
| M | S | T | E | A | M | M | L | C | R | P | R |

# Letter ladder




**Across**

1 What is formed when small particles are suspended in a liquid?
3 Which liquid is used to test for carbon dioxide?
7 What is the colour of dry copper sulphate?
8 Name the apparatus that is used to put out small fires.
10 Which gas is needed for a fire to burn?
12 Name the solid that can be used to put out small fires.

**Down**

2 Which gas is produced when a fuel burns?
4 Which liquid is produced when a fuel burns?
5 Name the reaction between burning fuel and oxygen.
11 A useful substances obtained from oil.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