Worksheet 1.1 - Make a fire tetrahedron

Cut out the shape below and fold along the dotted lines.

Draw or paint images which you think represent what is written on each side of the fire triangle, or search for suitable images on the internet and paste them on.

Form the shape into a tetrahedron and glue the tabs as indicated.
Worksheet 1.2 – Breaking the triangle

Fire Triangle – OXYGEN + HEAT + FUEL = FIRE

Fire is a chemical reaction which needs three things to be present so it can happen. If one of these is not present, the fire cannot start. If one of these is taken from a fire it will go out.

Having thought about the fire triangle complete the diagram below giving examples of heat and fuel sources (gases, solids and liquids).

If one of the elements is removed the fire will go out. Under the following headings suggest ways in which these elements could be removed:

<table>
<thead>
<tr>
<th>Heat</th>
<th>Oxygen</th>
<th>Fuel</th>
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</thead>
<tbody>
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2.1 – Background notes

Bushfires are inevitable in the fire-prone landscapes of Western Australia. Long dry summers, flammable vegetation and ignition from lightning or human causes mean that bushfires occur every summer.

A bushfire is an unplanned fire (also referred to as a wildfire). Each year the Department of Parks and Wildlife responds to more than 600 bushfires that occur on or near land managed by the department. Bushfires have many causes, some natural such as lightning and some as a result of human activity such as camp fires, escapes from prescribed burning operations, industrial activity such as timber harvesting, mining, farming and power transmission, and some from deliberate arson.

Managing bushfires is a shared responsibility. The department works closely with the Department of Fire and Emergency Services (DFES), local government authorities and volunteer bushfire brigades. Sharing the responsibility enables better management of bushfires across all tenures and access to a wealth of knowledge and expertise from a broad range of backgrounds.

Fire appeared in the Australian landscape millions of years ago, at a time of climatic and geological change, which led to the spread of the eucalypts, acacias and grasses we know today. Many of our plants and animals have evolved to not only survive fire, but depend upon it for their persistence. As a result of this very long association with fire, many Australian ecosystems have developed specialised relationships with fire.

Science-based principles are used as a guide for fire management in Western Australia’s fire-prone natural ecosystems. Fire is a natural part of many Western Australian environments, from the tropical savannah woodlands of the north, through the hummock grasslands of the arid zone, to the forests, woodlands and heaths of the south-west.

The best available science and information is used by the Department of Parks and Wildlife to develop and implement the most appropriate fire management polices to protect biodiversity, the environment and communities in the state.

Farmers, Traditional Owners, local, State and Federal governments, mining companies, the tourism industry and conservation groups all need to work together to implement fire management strategies for the entire region. Visitors and locals also need to do their bit to ensure fires are not started by careless actions of residents, campers or other visitor
Fire in our South West

So What? consequences of fire.

What is Fire: - Types of Fire

Who is involved in fire management?

When do fires occur?

Where fires happen

Why fires start.
Worksheet 2.3

<table>
<thead>
<tr>
<th>KWL</th>
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</thead>
<tbody>
<tr>
<td>What I Know</td>
</tr>
<tr>
<td>What I Want to Know</td>
</tr>
<tr>
<td>What I’ve Learnt</td>
</tr>
</tbody>
</table>
## Worksheet 2.4 – The 5 W’s

<table>
<thead>
<tr>
<th>What (Types of fire)</th>
<th>When (when fires occur)</th>
<th>Why (Causes of fire)</th>
<th>Where (Where fires occur)</th>
<th>So What? (positive and negative consequences of fire)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Positive consequences</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Negative consequences</td>
</tr>
</tbody>
</table>
Worksheet 4.1: Poetry Writing

1. Students cut 5 “flames” from red, yellow or orange paper. Template opposite. 2 per A4 page.
2. Refer to, renew discussion of fire experiences.
3. Have students recount or imagine a scenario where they are in proximity to a large bushfire. This includes the air, ground and surroundings, not just the flames.
4. Work through with the students each of the following sense headings:
   - What does the fire look like?
   - What does it sound like?
   - What does it smell like?
   - How does it make you feel?
   - What else is affected by the fire?
   - How do they feel/ react?
5. Students write down expressive words and phrases as relevant to that sense on individual “flames”.
6. Students will use their flames to assist in using creative and expressive language in writing their poems and in creating a realistic scene.
7. Use the flames in the display of students’ art and writing.
Experiment - Investigating the effects of fire on flora

Equipment per group of students:
Acacia seeds (approximately 20), boiling water, a cup, soil (from the local area) or potting mix from your local supermarket (check that no fertiliser is present), absorbent paper and pots or margarine containers with holes in the base for drainage.

Procedure:

Step 1
Divide the seeds into two piles – one pile will be ‘burnt’ (treated by heat) and the other pile ‘unburnt’ (not treated by heat).

Place the first pile of seeds in a cup and pour boiling water over them - (this simulates a fire. Most seeds in the bush are either on or just underneath the surface of the ground. As fire passes over the area the seeds are intensely heated). Leave them for five minutes. Take them out and dry them thoroughly on absorbent paper.

Place the second pile of seeds in a cup and pour cold water over them. Leave them for five minutes. Take them out and dry them thoroughly on absorbent paper.

Step 2
Place the soil or potting mix into the containers. Label half the containers ‘BURNT’ and the other half ‘NOT BURNT’

Step 3
Plant the “burnt” seeds 5mm deep in the pots labelled “BURNT”
Plant the “unburnt” seeds 5mm deep in the pots labelled “UNBURNT”

Step 4
Water each of the containers with the same amount of water and place them in a sunny position. The seeds must be watered every day including weekends and holidays.

Step 5
Observe the germination in the different containers over the next few weeks and record your observations in a table.

Don’t forget to water your seeds regularly!

Note: It is not advisable to plant your seedlings in native bushland even if the species occurs there naturally. This is because the seed you have used may have been collected from a different area and so may be slightly different from the native variety. They may be planted in your garden or the school grounds with appropriate permission. If you know the seed was collected locally, your seedlings may be used for a local revegetation project.
Investigating the effects of fire on flora

Experiment report

Name:

Date:

Aim:
The aim of the experiment is to:

Hypothesis: (What do you think will happen?)

Equipment and materials: (include seed type used):

Method: (describe what was done)
Observations:

<table>
<thead>
<tr>
<th></th>
<th>Number of seeds planted</th>
<th>Number of seeds germinating after 1 week</th>
<th>Number of seeds germinating after 2 weeks</th>
<th>Number of seeds germinating after 3 weeks or longer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnt seeds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unburnt seeds</td>
<td></td>
<td></td>
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</tbody>
</table>

Describe what happened after two to three weeks (or perhaps longer due to seasonal temperatures):

**Conclusions:** (what have you found out from the experiment and was your hypothesis correct)
Worksheet 6 - Making your home safe

Homes often burn down in bushfires because they are not adequately prepared. The house and surrounds allow flames or embers to set fire to the house.

In the diagram below, find and circle eight problems which could be fixed to make this house safer for the bushfire season.

Now suggest a way you could fix each of these problems:

1. ________________________________________________
2. ________________________________________________
3. ________________________________________________
4. ________________________________________________
5. ________________________________________________
6. ________________________________________________
7. ________________________________________________
8. ________________________________________________
Worksheet 7 - Firewords and fire behaviour

Use the internet or other means to research the meaning of the following words to do with fire.

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown fire</td>
<td></td>
</tr>
<tr>
<td>Surface fire</td>
<td></td>
</tr>
<tr>
<td>Spot fire</td>
<td></td>
</tr>
<tr>
<td>Prescribed burn</td>
<td></td>
</tr>
<tr>
<td>Wildfire</td>
<td></td>
</tr>
<tr>
<td>Fire intensity</td>
<td></td>
</tr>
<tr>
<td>Fire frequency</td>
<td></td>
</tr>
<tr>
<td>Fire seasonality</td>
<td></td>
</tr>
<tr>
<td>Mosaic or patch burns</td>
<td></td>
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</tbody>
</table>