Wildfires Lesson 2: prioritising fire actions

Task 1: Implementing fire action plans

Working in the same teams as lesson one, students need to work out how to respond to the fires which have started in their areas. The fires are shown with yellow stars on the map below.

Using the work sheet provided and the new team equipment cards each team should look at what would be the most effective way of fighting their fire. Each team will need a budget card which shows how much money they have to spend in their area. Each team should think that the fire will burn for five hours with the wind coming from a south westerly direction.

Kinder Fire Location Map
# Team Equipment Cards

## Fire-fighter
- Fuel, crew, hoses. Total daily cost for one fire engine £3600 per day
- Major pump hire: £380 per hour
- High volume pump placement and recovery: £1400 per hour
- Fire fighting knowledge

## National Trust Warden
- Helicopter: minimum cost of £2000 per hour
- Wardens £200 per day
- Crew transport x 1 £100 per day
- All Terrain vehicles (ATVs) x 2 £100 per day
- 4x4's x 5 £50 per day per car
- Fire Beaters x 20
- Hand operated water back packs X 20
- Local knowledge

## Moors for the Future worker
- Helicopter: minimum cost of £2000 per hour
- Clean up £2000 per hectare
- Command officers and base £500 per day
- Barrages to store water £100 per day

## National Park Ranger
- Rangers £200 per day
- Crew transport x 1 £100 per day
- All Terrain vehicles (ATVs) X 1 £100 per day
- 4x4's x 6 £50 per day
- Fire Beaters X 15
- Hand operated water back packs X 15
- Local knowledge
- Water tank pulled by land rover £150 per day
- Volunteer rangers x 30 £30 per day

## Water Authority worker
- Helicopter: minimum cost of £2000 per hour
- Clean up £2000 per hectare
- Crew transport X 2 £100 per day
- All Terrain vehicles (ATVs) x 3 £100 per day
- 4x4's x 5 £50 per day
- Access to water
- Hoses x 10
- Local knowledge
- Water tank pulled by land rover x 2 £150 per day
- Clean up of water supply £2000

## Farmer
- All Terrain vehicles (ATVs) x 2 £100 per day
- 4x4's X 2 £50 per day
- Fire Beaters X 10
- Local knowledge
- Hand operated water back packs X 5
- Helicopter landing area
- Help from other farmers x 15 free
Team budget cards (each team should select one at random)

Budget £6000  Budget £6000  Budget £7000

Budget £4500  Budget £5000  Budget £5000

Budget £10000  Budget £2000  Budget £3500

Budget £8000  Budget £4000  Budget £7500
Fire action: we have.............to spend (pick your spending card)

Location of fire: specific details
Height
Slope angles
In valley

Likely direction of fire spread:
Wind speed and direction

Features likely to increase risk and speed of spread

Hazards/actions on closure of paths etc

Property at risk

Nearness to adequate water supply:
Distance to nearest streams/water supply
Size of nearest stream/water supply

Personnel needed: with reasons
**Equipment needed:** with reasons

**Time to reach fire site:**

On foot

By vehicle – 4x4 or ATV off-road

By vehicle – 4x4 or ATV by track

Road access

Helicopter arrival time

**Helicopter water source:**

**Helicopter landing site:**

**Cost of fighting this fire:**

Cost of personnel:

Cost of equipment:
Task 2: Chance cards

INTERUPTION NEAR TO END OF SESSION: pick one card, whatever the card says affects all the teams, they must think about how to react to these changes.

Chance cards

| Weather report update: strong south westerly winds are predicted into late afternoon and evening. No rain is forecast | Fire in area 2 is spreading out of control and impacting on other areas |
| Wind changes direction 180° | Helicopter has developed a technical problem and is no longer available. |

Think about:

Why should your fire be prioritised? Think about how you will present your case for the equipment you need to use including access to helicopters. How are you going to get people and equipment to the site? How might your actions affect other teams?
Fact sheet:

The severity of a fire depends upon:

- Temperature
- Wind speed
- Moisture
- Fuel load
- Vegetation type
- Topography
- Intervention to fight the fire

Fires are driven forwards by the prevailing wind  
(Picture two the red circle should be egg shape if possible to represent a wider front were the fire flank would be)

- Fires spread due to burning along their flanks
- The wider the fire front, the faster it tends to increase and spread
- The flash point of the materials, i.e. when it will burst into flames is important as well as its water content
- Less dense material such as small branches and leaves are easier to ignite as they contain less moisture.
- Periods of hot weather increase risk of fires as material is drier – the longer the drought, the bigger the risk
- Fires generally are worse during the daytime due to lower humidity
- Fires generally spread upslope, with a chimney effect as heat rises
- Strong winds can blow embers loose which then start other spot fires ahead or to the side of the main fire
- If fires burn exceptionally hot, they can ‘jump’ across barriers such as streams or roads. The heat from the fire dries out land ahead until it reaches its flashpoint and burns. Wind can help fires jump by blowing embers. The Bleaklow fire jumped the main road
- Fires can burn underground, especially with peat. The fires can seem to go out, but re-ignite several hours or even days later. Having people behind the fire checking the ground for hot areas can prevent this.
- Lots of waste vegetation can act as fuel for advancing fires.