

**Science - Year 6**

**Evolution and Inheritance – Block 6EI**

# **The Game of Survival**

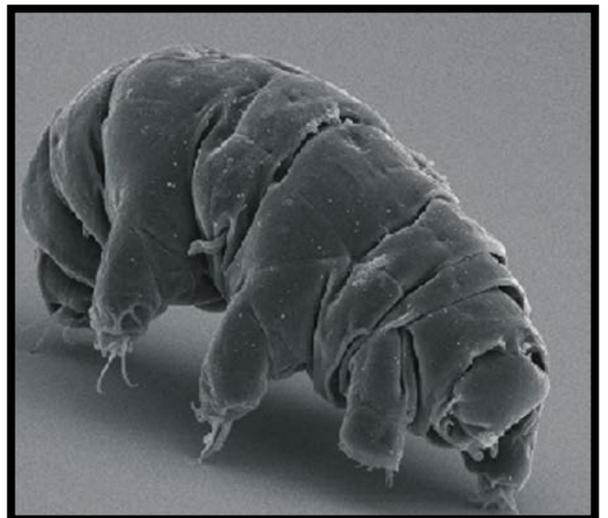
Session 3

Resource pack

## Extreme Survivor

*Print, cut out and get chn to match the living thing to the extreme environment*

<b>Temperatures as low as -58°C</b>	<b>Bark beetle produces a form of antifreeze</b>
<b>Temperatures as high as 50°C</b>	<b>Sahara desert ant has long legs that keep it off the hotter sandy floor</b>
<b>Very deep oceans where the pressure reaches 1000x that of the surface. The water is freezing and it is pitch black</b>	<b>Lantern fish has light producing organs and high levels of polyunsaturated fats that help keep the pressure inside the body the same as outside. They also have a low metabolism.</b>
<b>Very high mountains (over 2,500 m) where oxygen levels are low</b>	<b>Andean people living high in the mountains have greater lung capacity and their blood can carry a greater volume of oxygen than people at lower altitudes.</b>
<ul style="list-style-type: none"><li>• <b>Dry places with no water</b></li><li>• <b>Freezing to -272.8 °C</b></li><li>• <b>Heating to 151 °C</b></li><li>• <b>Pressure six times as great as that felt at the bottom of the deepest ocean</b></li><li>• <b>Doses of X-ray and gamma radiation that are lethal to other life forms</b></li></ul>	<b>Tardigrades can switch off their metabolism and wait for conditions to improve!</b>
<b>Areas of frequent bush fires</b>	<b>Ceanothus bushes have heat resistant seeds and need fire for germination – they even have flammable resins on their leaves that would seem to encourage fires! The leaves have high levels of nutrients that are released when they are burnt. The Ceanothus re-grows. The leaves are designed to avoid water loss and desiccation.</b>



# Cactus



## Camel



## Emperor Penguin



**Giraffe Drinking**



## Sample landscapes



This is a desert environment. Water is scarce, as is food. Temperatures reach over 50°C during the day and drop to 0°C at night. The ground lacks nutrients and is unstable. Major predators include large scorpions, poisonous snakes and a form of desert lion.



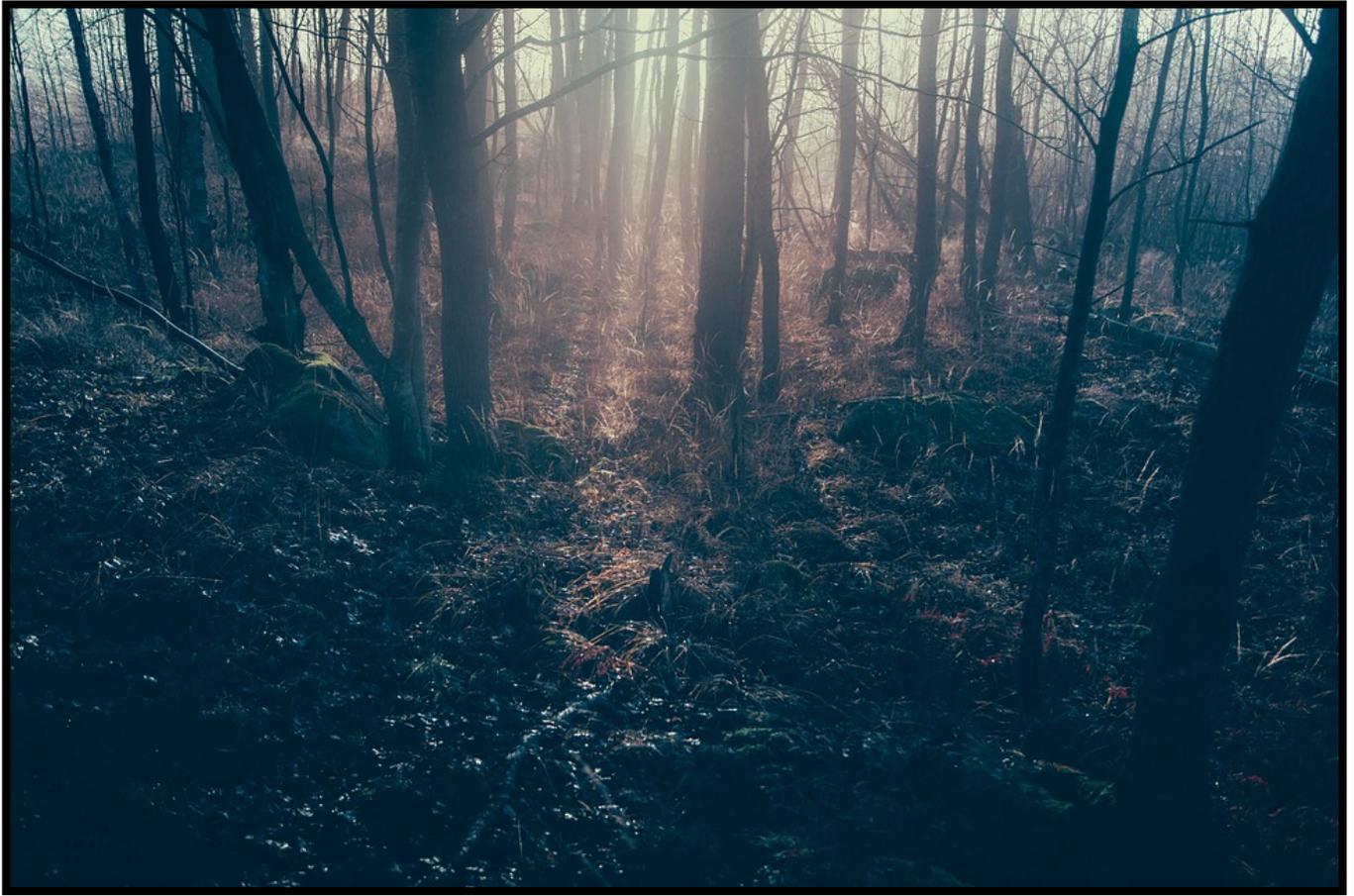
This is a watery environment. Solid land that doesn't flood is scarce, but food is abundant in the form of fish and vegetation. Temperatures remain fairly constant at a comfortable 18-20°C. Major predators include a small species of shark, bears and boa constrictors. There are also small poisonous frogs and highly toxic tarantulas. Watch out for the lethal shrubs that contain paralyzing toxins when eaten.



This is a lush forest environment. Water is plentiful, as is food. Temperatures reach 25°C during the day and drop to 10°C at night. Major predators include large wolves and leopards as well as a large eagle species that hunts in packs! There are many poisonous berries in this woodland and trees are susceptible to canker diseases.



This is a mountain and plateau environment. Water is available from the many streams and rivers running off the mountains, and while food is available, many plants are spikey and tricky to eat. Temperatures range from 12-22°C during the day and can drop to below 0°C at night. The terrain is steep and rocky and plants can sometimes struggle to put down deep roots. Shelter can be limited. Major predators include mountain lions, hawks and foxes. There is an abundance of insect life which sustains a range of small omnivorous mammals.



This is a dark and dense forest environment. Water is plentiful and the general atmosphere is damp. Fungus and plants that require a low level of sunlight thrive, as do insects. This provides food for an array of small omnivorous mammals. Temperatures remain around 18°C during the day and night. The forest is awash with poisonous plants, insects and snakes, with major predators including wild dogs, mid-sized wild cats and bears. Vision within the forest is limited due to the low light levels.



This is an icy and snowy environment. Water is locked up in the ice and food is scarce. Temperatures never reach higher than a few degrees C during the day and can drop to  $-40^{\circ}\text{C}$  at night. Plant life is very limited as are insects. Fish is abundant in floes. Major predators include snow bears and foxes. This land is very white.

## What are you designing?

Pick one of the plant forms and one of the animal forms for your environment.  
Make sure that your group covers all options:

<b>Small plant</b>
<b>Shrub</b>
<b>Tree</b>
<b>Insect</b>
<b>Bird</b>
<b>Small mammal</b>
<b>Reptile</b>
<b>Large mammal</b>
<b>Marine mammal</b>
<b>Fish</b>

Aspects to consider when designing your plant and animal:

**Food/water** – what will it eat and drink, or how will it gain nutrients, and how do its characteristics support this?

**Predators/prey** – how do its characteristics help it to elude predators or catch prey?

**Movement** – what characteristics will it need to move successfully around its environment?

**Shelter** – how is it designed to find or create shelter?

**Climate** – what characteristics does it have that help it to survive in its climate?

**Protection** – does it have any in built protection or deterrent to prevent being eaten?

**Future proofing** – does your plant or animal have any characteristics that may prove useful in the event of a major change in the environment?

**Social behaviour** – does your plant or animal live in a colony or group or is it solitary

**Diurnal/nocturnal** – when is your animal awake and how do its characteristics support this?