**Sweating**

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**ESSA Question**

**Why does your body sweat?**

**Explain scientifically how sweating changes your body temperature.**

Below are some real student answers for this ESSA question. Draw lines to match each answer to the level you think it belongs to. Be prepared to explain why.

|  |  |  |  |
| --- | --- | --- | --- |
| **Common sense answer** |  |  | **Why does your body sweat?**  To cool itself down  **Explain scientifically how sweating changes your body temperature.**  The liquid evaporates and this action cold us down. |
| **Answer has 1 piece of scientific information** |  |  | **Why does your body sweat?**  To excrete unwanted fluids that will cool down your body temperature during exercise  **Explain scientifically how sweating changes your body temperature.**  It cools it down, and stops you from overheating |
| **Answer has 2 or more pieces of scientific information** |  |  | **Why does your body sweat?**  To lower our body temperature  **Explain scientifically how sweating changes your body temperature.**  Sweating changes your body temperature through the process of evaporation. Sweat is the results of high body temperature and the body’s skin will also be hot. Heat energy is transferred from skin to sweat to evaporate the sweat. As a result your body loses heat energy and in turn lowering your body temperature. |
| **Answer is a scientific explanation** |  |  | **Why does your body sweat?**  To cool your body down  **Explain scientifically how sweating changes your body temperature.**  When the sweat is on the skin it evaporates and takes the heat from the skin away with it. |

**Metal rods**

The graph shows how one metre long metal rods change length when placed in an oven at 400 °C.



**ESSA Question**

**Use the graph to describe what happens to metal rods in the oven.**

**Explain scientifically the change in length of the metal rods in the oven.**

Below are some real student answers for this ESSA question. Draw lines to match each answer to the level you think it belongs to. Be prepared to explain why.

|  |  |  |  |
| --- | --- | --- | --- |
| **Common sense answer** |  |  | **Use the graph to describe what happens to metal rods in the oven.**  Heat melts the metals, causing them to expand.  **Explain scientifically the change in length of the metal rods in the oven.**  When the metals are heated they become flattened and so expand. Metal rods expand when heated due to their compound. |
| **Answer has 1 piece of scientific information** |  |  | **Use the graph to describe what happens to metal rods in the oven.**  Iron extends around 4cm, copper extends at nearly 7cm and aluminium extends the most at a little more than 9cm.  **Explain scientifically the change in length of the metal rods in the oven.**  Metals usually expands when heated because the particles of the metal start to move faster when they have more energy. Particles gain more energy when heated and particles with energy move apart. When the metal rods are heated in an oven the heat causes the metal rods to expand. Heat makes the particles vibrate which makes them move away from each other. |
| **Answer has 2 or more pieces of scientific information** |  |  | **Use the graph to describe what happens to metal rods in the oven.**  The rods are getting longer when heated.  **Explain scientifically the change in length of the metal rods in the oven.**  Particles absorb energy when heated. Metal rods expand when heated because the heat makes the particles hot which causes them to get more energy. The metal material will expand because the particles are absorbing the heated energy. |
| **Answer is a scientific explanation** |  |  | **Use the graph to describe what happens to metal rods in the oven.**  Aluminium expands more than copper, which expands more than iron.  **Explain scientifically the change in length of the metal rods in the oven.**  Heat causes metals to expand. The rods are made of many particles of that metal. When the metal rods are heated, the energy makes the particles vibrate faster and the spaces between them increase. This causes the metal rod to expand. |

**Drought-resistant grass**

Some students performed an experiment to see how the amount of water given to grass affects the height of grass. They had 3 pots of native grass and gave the first pot 15 ml of water each day, the second pot 25 ml of water each day and the third pot 40 ml of water each day. The results of their experiment are shown in the graph. Think about patterns and trends in the results



**ESSA Question**

**Write a conclusion using the student’s results.**

**Discuss the possible impacts of changing rainfall patterns on Australian ecosystems.**

Below are some real student answers for this ESSA question. Draw lines to match each answer to the level you think it belongs to. Be prepared to explain why.

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| --- | --- | --- | --- |
| **Common sense answer** |  |  | **Write a conclusion using the student’s results.**  Based on the results we have received, I therefore conclude that when more water is given to the plants the taller it grows.  **Discuss the possible impacts of changing rainfall patterns on Australian ecosystems.**  Changing rainfall patterns in Australia could change the rate of plants in the desert would grow. More rainfall in Australia means more grasslands. This could also eliminate the deserts in Australia and replace it with beautiful flora. On the other hand, this would affect the animals living in the desert because their natural habitat would no longer exist in that area because of all the grass and the amount of moisture. |
| **Answer has 1 piece of scientific information** |  |  | **Write a conclusion using the student’s results.**  When observing the grass it grows better with 25ml to 35ml of rain.  **Discuss the possible impacts of changing rainfall patterns on Australian ecosystems.**  It rains about once a year when the pressure systems change on the coast. |
| **Answer has 2 or more pieces of scientific information** |  |  | **Write a conclusion using the student’s results.**  As the water amount increased the height of the grass also increased. The 25ml pot had the biggest growth compared to the one before it but the highest the grass ever got was 199 mm with 40 ml of water.  **Discuss the possible impacts of changing rainfall patterns on Australian ecosystems.**  It could change the way plants grow and when they grow over the years they have grown and adapted to the Australian landscape. |
| **Answer is a scientific explanation** |  |  | **Write a conclusion using the student’s results.**  The more you water the grass the taller it grows. If you don’t water it, it won’t grow.  **Discuss the possible impacts of changing rainfall patterns on Australian ecosystems.**  If it would rain more in areas like the deserts than the native grass would grow taller and other plants would grow in there. The animals would have more food to eat. |