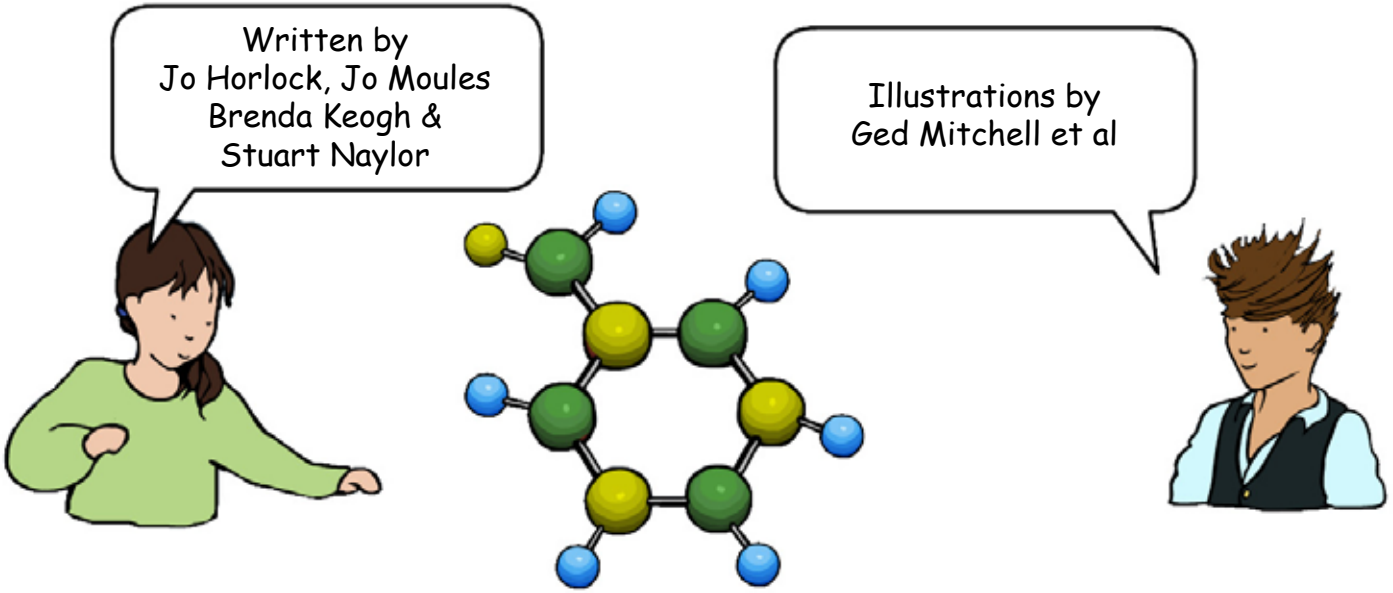
Science Concept Cartoons®

Set 2 - Sample Set 1



Produced by Millgate House Education

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Science Concept Cartoons® Set 2 - Sample Set

Concept Cartoons® are cartoon-style drawings that put forward a range of viewpoints about a particular situation. They are designed to intrigue, provoke discussion and stimulate thinking. Concept Cartoons make concepts problematic and provide a stimulus for developing ideas further.

Each Concept Cartoon can be used to stimulate a free standing discussion and enquiry. Alternatively, the Concept Cartoons can be linked together to form a larger topic or to create a project related to science.

Some Concept Cartoons may look as if they are too easy for some learners, but their deceptive simplicity can stimulate discussion about more challenging concepts and can often reveal some basic misunderstandings. Learners can create their own Concept Cartoons as a way of assessing and reviewing their current understanding.

Concept Cartoons do not always have a single right answer.

Each Concept Cartoon has support material, including ideas for follow up and some possible answers.

* Concept Cartoons are normally used to promote a group discussion.
* Ask learners to discuss why each character in the Concept Cartoon might hold their particular idea. Do they have any other ideas that might go in the blank speech bubble?
* Avoid being judgemental when learners are sharing their ideas. The uncertainty created by Concept Cartoons is productive.
* Provide an opportunity for learners to explore, challenge or consolidate the ideas raised through the Concept Cartoon(s).
* Provide time for learners to share their ideas.
* Have they changed their minds and why?

To learn more about Concept Cartoons and how they are used, visit:
www.millgatehouse.co.uk **Twitter: @MillgateHouseEd**

When printing out the Concept Cartoons please select the landscape setting on your printer options

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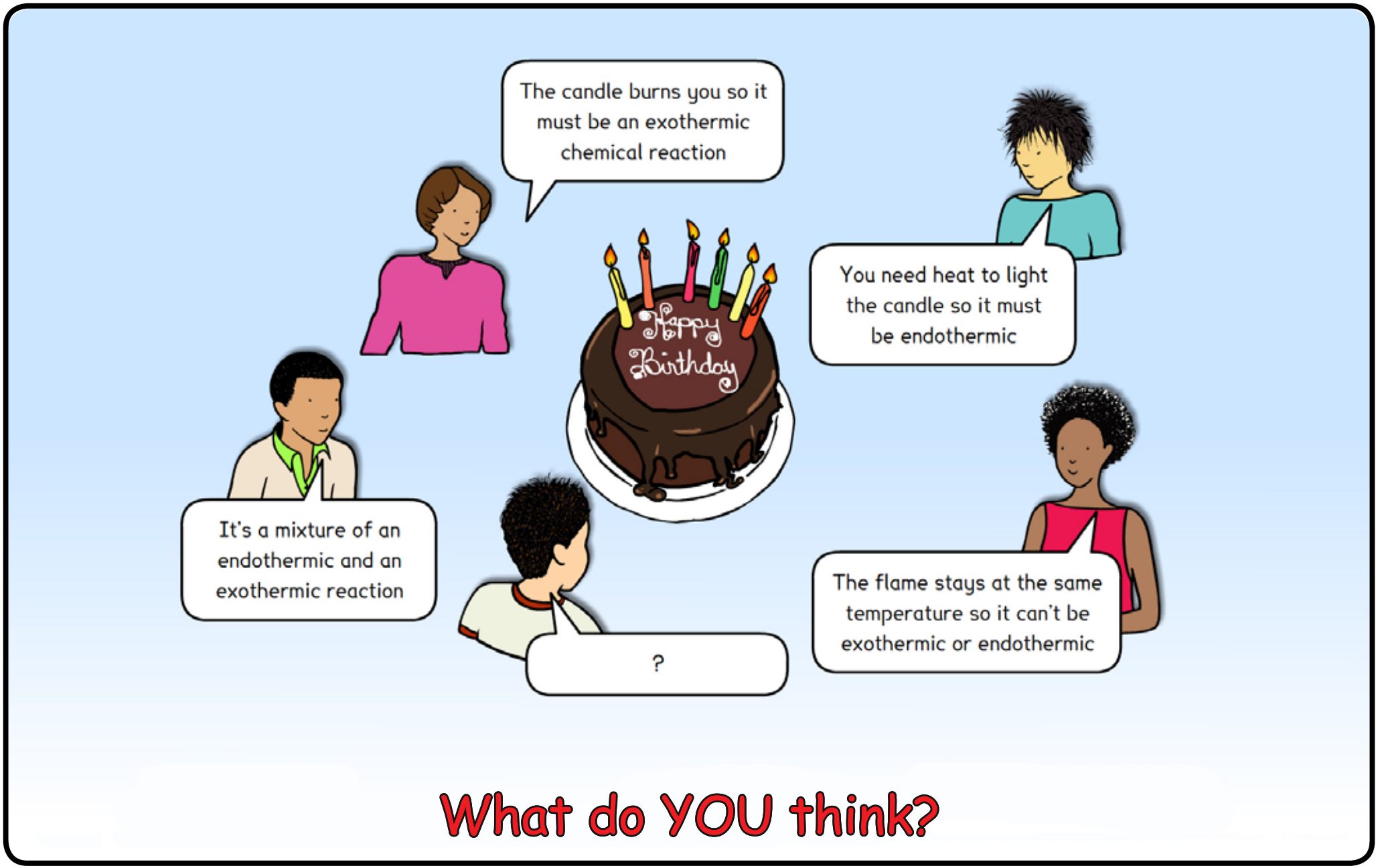
5.8 Exothermic/endothermic reactions



Follow up

Light a small candle and watch it burn. Concentrate on the flame. Talk about what is happening in terms of energy transfer – what changes are taking place, how does the flame carry on burning, where does the energy come from and where does it end up? How can you tell if a chemical reaction is happening? Look this up in a book or on the internet if you are not sure

Safety note: A candle flame is very hot and you could burn yourself or possibly scorch or set fire to something. Make sure you are supervised by an adult, that the candle is securely on a flame-proof surface and cannot fall over. Take care with the lighter or matches you use to light it.

Ideas

In a chemical reaction, some bonds between atoms and molecules are broken and new bonds are formed. Energy is needed to break the bonds and start the chemical reaction. This is called the activation energy. Sometimes the activation energy is so low that the reaction starts spontaneously. This is because the energy of the particles colliding is enough to start the reaction. Once it starts, burning is an exothermic reaction. This means that energy is transferred to the surroundings. The flame burns at a fairly constant temperature and transfers energy to the surroundings. Some reactions are endothermic, which means they need to absorb energy to happen. These reactions often need to be heated to work, and they make the surroundings colder. Making an omelette from raw eggs is an endothermic reaction. You have to put in energy to make this reaction happen. Can you make a list of what you think are the five most important exothermic and endothermic reactions that affect your everyday life? Does everyone agree?