**Exploring the body**

**Exploring protection**

Some parts of the skeleton, such as the skull, rib cage and pelvis provide protection and the spinal cord also protects some important nerves.

You are going to investigate how a delicate object can be protected. Your task is to protect a chocolate teacake from damage. You will need to be working in teams; your team will be provided with the resources shown above. Each team will have the same quantity.

Resources required:

paper

card

drinking straws sellotape

chocolate covered teacake



**1. Design and construct something that will protect the chocolate covering on a chocolate teacake from cracking if it dropped. The teacake cannot be attached to the structure; the structure will be dropped from increasing heights to see how successful it is.**

**2. Think about how you can use the materials most effectively. For example, is it better to have them fit the teacake snugly or loosely? Would a spherical (i.e. ball shape) structure be the best?**

**3. Test and compare devices. Look at the more successful ones and identify key features of effective designs.**

• Were they good at protecting the teacake (as far as possible) from all angles?



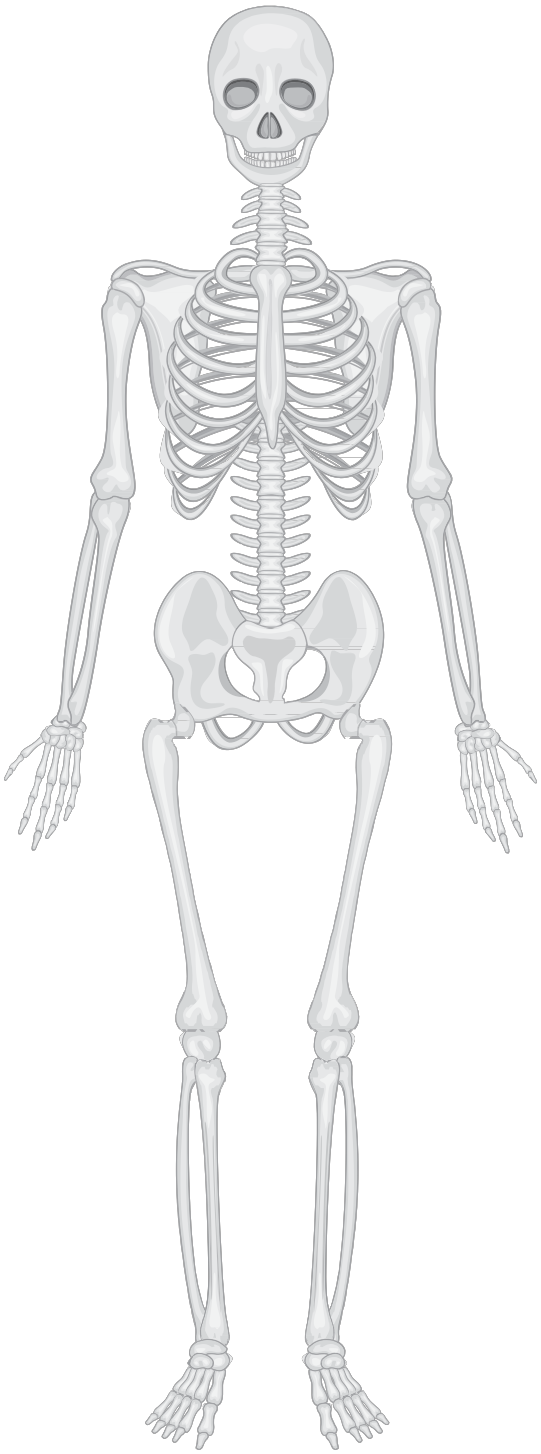
• Is it true that effective designs aren’t necessarily rigid?

**4. Now look at a picture of the skeleton and look at the protective structures. See if there are features in common with your designs, possibly including:**

• All round protection (e.g. skull)

• Flexibility (e.g. ribcage and backbone)

• Lightweight structure (e.g. rib cage)

**The human skeleton**

? **Extension:**

A beetle has a strong outer casing, called an exoskeleton, which provides protection. How successful a feature is this compared with, say, the skull and rib cage? Would humans be better with an exoskeleton than an endoskeleton?