Obtaining evidence

- Demonstrate how to build the Robo Arm:

1. Cut out a sheet of card, 30cm x 15cm. Divide it into five, 3cm – wide columns.
2. Draw a dividing line halfway down the width of the card. Score all lines firmly.
3. Cut the card along the halfway line, leaving just one uncut column in the middle.

4. Fold the card into two, linked, square tubes and tape the edges firmly together.
5. Lie a balloon flat against the top uncut side of the arm. Measure 17cm of string (the ligament). Tape the top of the balloon and string to the tube. Tape the end of the string across the joint.

6. Lie the arm flat and blow up the balloon. You may need a cycle pump.
7. Lie a balloon flat against the top of the cut side of the arm. Measure 25cm of string. Tape the top of the balloon and string to the tube. Tape the end of the string across the joint.
8. Close the arm up and inflate the balloon.

- Label the upper tube 'Humerus', the top of the lower tube 'Radius' and the bottom 'Ulna'. The first balloon represents the biceps, the second the triceps.
- Split the children into pairs and help them choose their equipment.
- Supervise as they make their models. Emphasise the model is not of a complete arm. There are many more muscles, but the biceps and triceps are the most important.

Drawing together

- Ask the children to demonstrate their finished arms and discuss their findings.
- Finally, help the children to draw up a set of labelled blueprints for the Robo Arm.

Support

Show children how to make the Robo Arm and ask them to design a poster showing the arm's 'life-like qualities'.

Extension

Children could research links between exercise, a good diet and healthy growth of muscles and bones.

Scientific language

biceps – muscles at front of upper arm
humerus – long bone between the shoulder and elbow
triceps – muscles at back of upper arm
ulna – forearm bone on side opposite the thumb
radius – forearm bone on the thumb side