

Activity

1B

How Do My Arm Muscles Work?

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Skill:

Explain relationships through models

In groups, create a model to show the relationships between bones and muscles and how they work together.

Materials:

Scissors

Ruler

Thin cardboard

Masking tape

Marker

Three sewing pins

Large paper clip

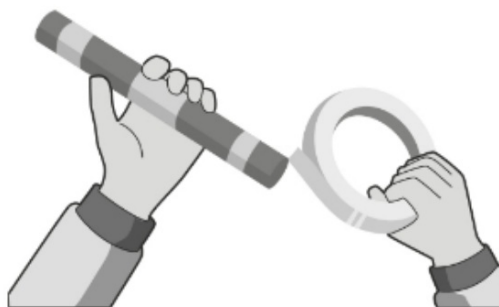
Two long balloons

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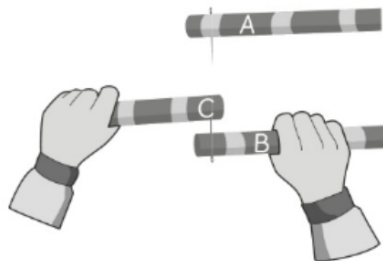
Method

- 1 Use the scissors to cut two strips of size 20 cm by 30 cm from the cardboard.
- 2 Roll each strip into a tube and use the masking tape to form two 20-cm long arm bones.
- 3 Label the tubes "A" and "B".



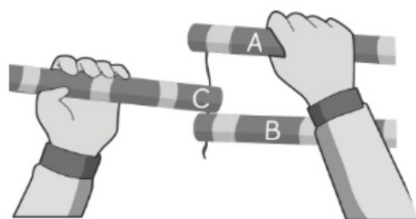
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- 4 Use the scissors to cut a strip of size 30 cm by 30 cm from the cardboard.
- 5 Roll the strip into a tube and use masking tape to form a 30-cm long arm bone.
- 6 Label the tube "C".
- 7 Use a sewing pin to make a hole through the end of each tube from one side to the other.

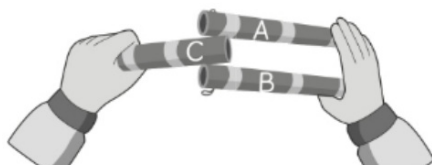


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- 8 Straighten the paper clip to create a wire that you can bend.
- 9 Line up the holes of the tubes and thread the wire through them.



- 10 Bend the ends of the wire to secure the tubes together.
Use the masking tape to cover the wire so that there are no sharp ends.

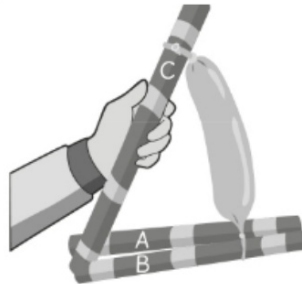


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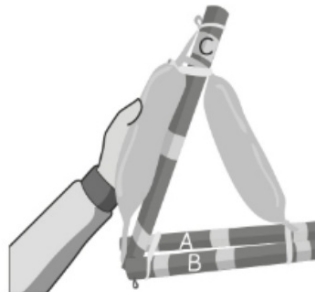
- 11 Blow up two long balloons to form the two arm muscles. Leave a little tail at the two ends of the balloons for tying.
Tie one end of the balloon to tubes A and B.



- 12 Tie the other end of the balloon to tube C.



- 13 Tie the other balloon in the same way to the other end of the tubes A and B.
Tie the remaining end to tube C, where you have tied the first balloon.



Which part of the model represents bones?
Which part of the model represents muscles?

Bones: tubes

Muscles: balloons

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- 14 Describe what happens to each balloon as you straighten the "arm".

The upper balloon (biceps) will become thinner and longer (relax)

while the lower balloon (triceps) will become shorter and thicker (contract).

- 15 Describe what happens to each balloon as you bend the "arm".

The upper balloon (biceps) will become shorter and thicker (contract)

while the lower balloon (triceps) will become longer and thinner (relax).