

ACTIVITY ONE: THE MECHANICS OF WEAPONRY

Make a working representation of an armoured vehicle that moves

Learning objectives

- To make a working model using mechanical systems;
- To use a wide range of tools and equipment to perform practical tasks.

Resources

Card

Scissors or scalpel

Hole punch, compass point or cocktail sticks for making a hole

PVA glue or masking tape and sellotape

Newspaper

Small wooden dowel or pencil

Introduction

Find out about Tanks using the Tanks Fact Sheet

MAIN TASKS

1. Draw out the main body of the vehicle, breaking it down into elements of front, back, top, bottom, sides. Use card that you cut with scissors or a scalpel. Make sure that sides are symmetrical.
2. Cut out the shapes accurately.
3. Before sticking it all together decide where the wheels will go and mark their centre on the sides. Using a hole punch, the point of a pair of compasses and a pencil, a pair of scissors or your scalpel, make a hole for a spindle for the wheels.
4. Piece the cut out body shapes together using PVA glue, if gluing edge to edge, and/or masking tape to hold in place. Make sure the tape does not wrinkle and is smooth along the edges. You can put card supports inside the vehicle body to add strength.
5. You can strengthen the body of the vehicle by coating it with PVA and/or PVA and small strips of newspaper.
6. Paint the body of the vehicle once the PVA is dry. Mix some PVA into your water based paint as this will make it stronger.
7. Using a pair of compasses or a circle template, draw, then cut out, the wheels.
8. Either cut notches at regular intervals in the wheels to create "teeth" or add blunted cocktail sticks to the wheels so that it resembles "spokes". Make a hole in the centre of each wheel for the spindle.

9. Put a spindle made of a thin piece of dowel or a pencil through the holes you made earlier in the body of the vehicle. To stop them moving from side to side make cardboard 'washers' by cutting a small square of card with a hole in it and attaching it to the spindle with a little glue, being careful not to glue it to the side of the vehicle. Make sure one of the spindles is long enough so that you can turn it with your fingers.
10. Add the wheels to the spindles on both sides of the vehicle.
11. Take a strip of paper and cover it in sellotape to strengthen it but keep it flexible. Run the tape along the length of the strip. Make sure the strip is long enough to go the length of the vehicle twice over i.e. it needs to wrap around the wheels and join up.
12. Before you join the strip of paper together, cut notches along the edge of the strip or make holes at regular intervals and "feed" the "cogs" onto the strip of paper that forms the "track". This part is quite technical and you will have to make sure that the size of your notches on the wheels correspond to the ones on the strip or "track".
13. The idea is for your track to move when you turn one of the wheels using the spindle.