

This lesson aims to guide children through designing a Roly-Poly toy, thinking about who they are designing it for, how to build it and how to decorate it.

Use the DESIGN SHEET (pg 4 of this document) to record the process.

### 1. Selecting the movement:

First show your child **examples** of these three roly-polys - the Racer, the Ditherer and the Wanderer.

Which do you like best? Why? Can you describe their movement? Can you see why they move like that? Which one do you want to make?

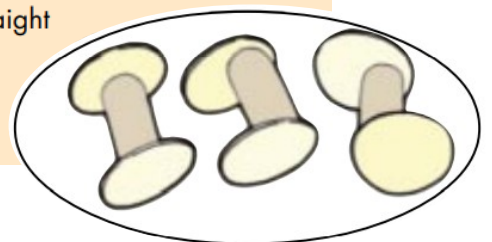


**How will your roly poly move?**

Racers – roly polys with circular wheels mounted centrally so they roll evenly, in a straight path.

Ditherers – roly polys with circular wheels mounted offset so they roll in a straight path, moving up and down as they travel.

Wanderers – roly polys with circular wheels mounted offset so they roll in a zigzag path, moving up and down as they travel.



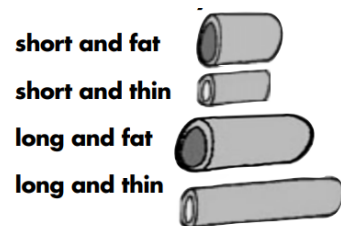
### 2. Designing the wheels:

How big will your wheels be? What material would be best to use? What sort of faces will your roly-poly have? Draw out 'expressions' words—happy, sad, fierce, grumpy, excited, cross, surprised, furious, delighted etc. Make the face using paper cutouts stuck on thick cardboard.



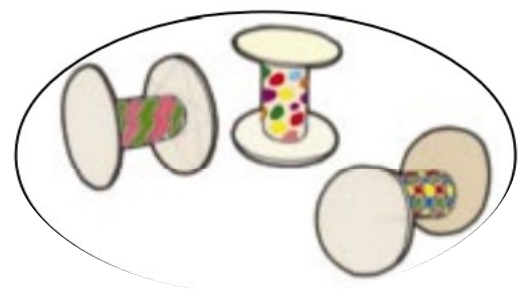
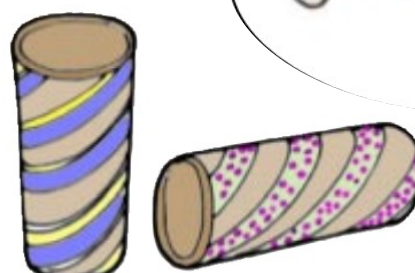
### 3. Designing the body:

What size will the body of your Roly Poly be? What will you make it out of?



What will the body of your roly poly look like? Talk about patterns that would look good not only when it is still, but also when it is moving.

Show the children how to decorate the body by applying small amounts of PVA glue and winding coloured materials around the tube. Show how this looks when the tube rotates. Show how adding small amounts of shiny material will cause the body to glitter as it rolls.



#### 4. Assembling your Roly Poly:

Teach your child how to attach tubes by using tabs to create a firm joint. Remind them to think very carefully about the position of each wheel to create the movement they want.

##### Method 2 – cutting tabs in the body and gluing with PVA glue

Show the children how to cut small slits into each end of the tube to form tabs and to bend them out to form a gluing surface to attach the wheels. Note the importance of the following:

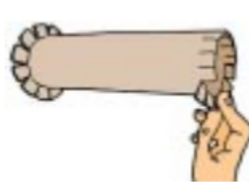
- ◆ cutting carefully;
- ◆ positioning the tube centrally;
- ◆ leaving to dry (overnight preferably);
- ◆ applying pressure while drying.



snipping one end of tube with scissors



snipping the other end of tube with scissors



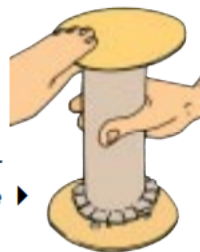
bending cut ends of the tube to form gluing surfaces



applying PVA glue to each gluing surface

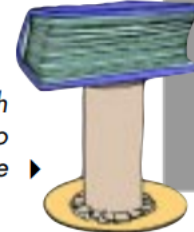


positioning tube onto the wheel



positioning other wheel onto the tube

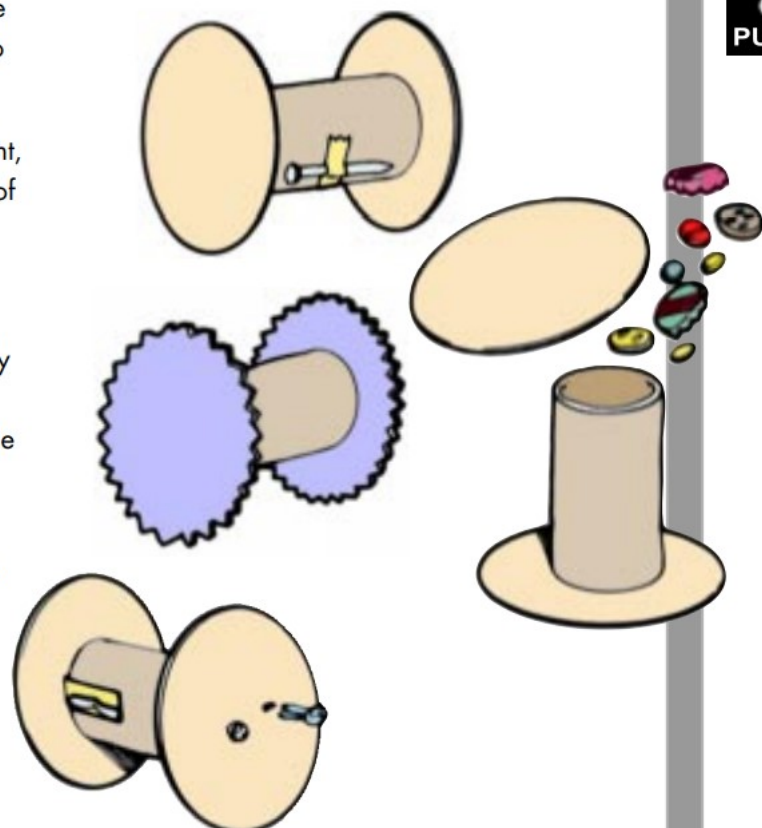
leaving to dry with heavy object on top to apply pressure






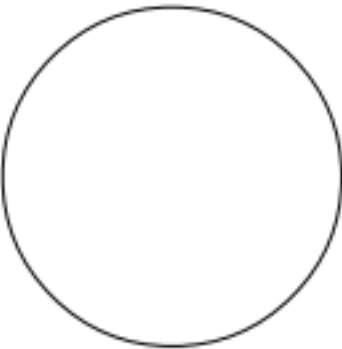





##### Extension work

Children who finish early or who require an extra challenge might be asked to do the following.

- ◆ Investigate the effect of fixing a weight, such as a large nail, along one side of the body of a racer roly poly to see what effect this has on the way it moves.
- ◆ Investigate ways to make the roly poly make noise as it moves e.g. jagged wheels or things inside the body made from a "tin" can rather than a cardboard tube.
- ◆ Investigate the use of paper fasteners to make the wheels on a roly poly adjustable.



# Roly poly specification

Name .....										..... will make a roly poly									
that runs straight				for me 		the body		short and fat 		the face will be like this:									
that dithers				for someone younger 		will be		long and thin 											
that wanders				like this:		like this:		short and thin 											
my roly poly will look like this:																			