robobricks

TANGIBLE CODING

Kangaroo

Duration

60 minutes

Grade

1 to 2

Level - Basic construction & programming

LEARNING OUTCOMES:

After this lesson, students will be able to:

1. Discuss & explain about the different parts of a Kangaroo.

2. Learn about the different traits of the Kangaroo.

3. Know how a kangaroo is different from other animals.

4. Create programs that will mimic the movement of the Kangaroo.

KEY VOCABULARY

• Mammals

• Kangaroo

• Marsupial

After the story, show the children pictures of a Kangaroo. Ask them the following questions: (You can help the children with the following responses:)

1. **What type of animal is a Kangaroo?**

    A Kangaroo is a mammal or a warm-blooded animal. It is also known as a marsupial.

2. **What is a marsupial? How does this make it different from other animals?**

    A marsupial is an animal that carries its own young on its body. Some of these animals have a pouch where they keep their young.

3. **How does a kangaroo move from place to place?**

    A Kangaroo hops on its hind feet from place to place.

4. **How big or how small is a Kangaroo?**

    A Kangaroo is about 5 feet tall. Almost as tall as a teenaged child.

IMAGINE

Tory has an uncle who lives in Australia. He would tell her stories about a strange animal that lives in the Australian outback, which is almost as tall as a man, hops on its hind legs & carries its young in a pouch. Tory tries to imagine what such an animal looks like and one day, her uncle sends her a picture book of the different types of animals in Australia. As she was browsing through the pages, she found the animal she was looking for - the Kangaroo.

Investigate:

Tell the children that before we begin the construction of the robot kangaroo model, we will need to look at a few traits of a kangaroo in real life.

1. Kangaroos hop around on their powerful hind legs.
2. They also have a strong tail to help them keep their balance.
3. Kangaroos carry their young called Joeys in their pouch.

IDEATE

- Before we build our robotic model, let us look at the different parts of a kangaroo.

- Does our robot model have the same parts?
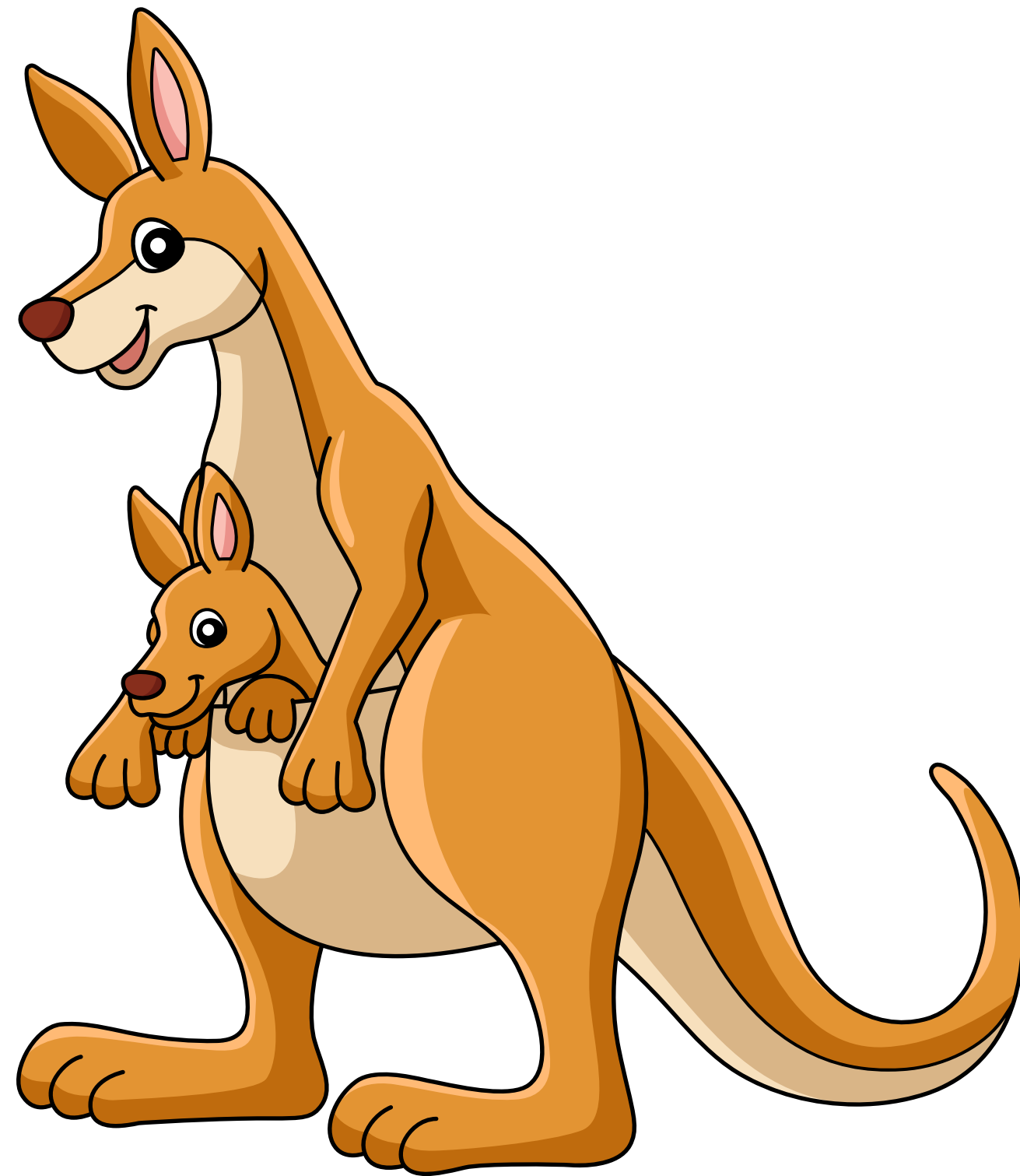
Construct:

1. Instruct the children to form teams of 2 to 3 per Robobricks C-STEM kit.
2. Have them follow the step-by-step instructions from the construction manual.
3. Make sure that the model looks similar to the image provided.

CREATE

Code:

1. Instruct the children to have their Wand, coding chips & trays ready.
2. Have them arrange the coding chips according to the programs provided below.
3. Switch on the Brain Block. Switch on the Wand. Tap the Wand on the Start chip.
4. Pair the wand to the Brain Block & once it connects, begin the code.
5. Remind them that to run the program, they have to press the "Play" ▶ button on the Wand.

Program 1: Programming the kangaroo to move around
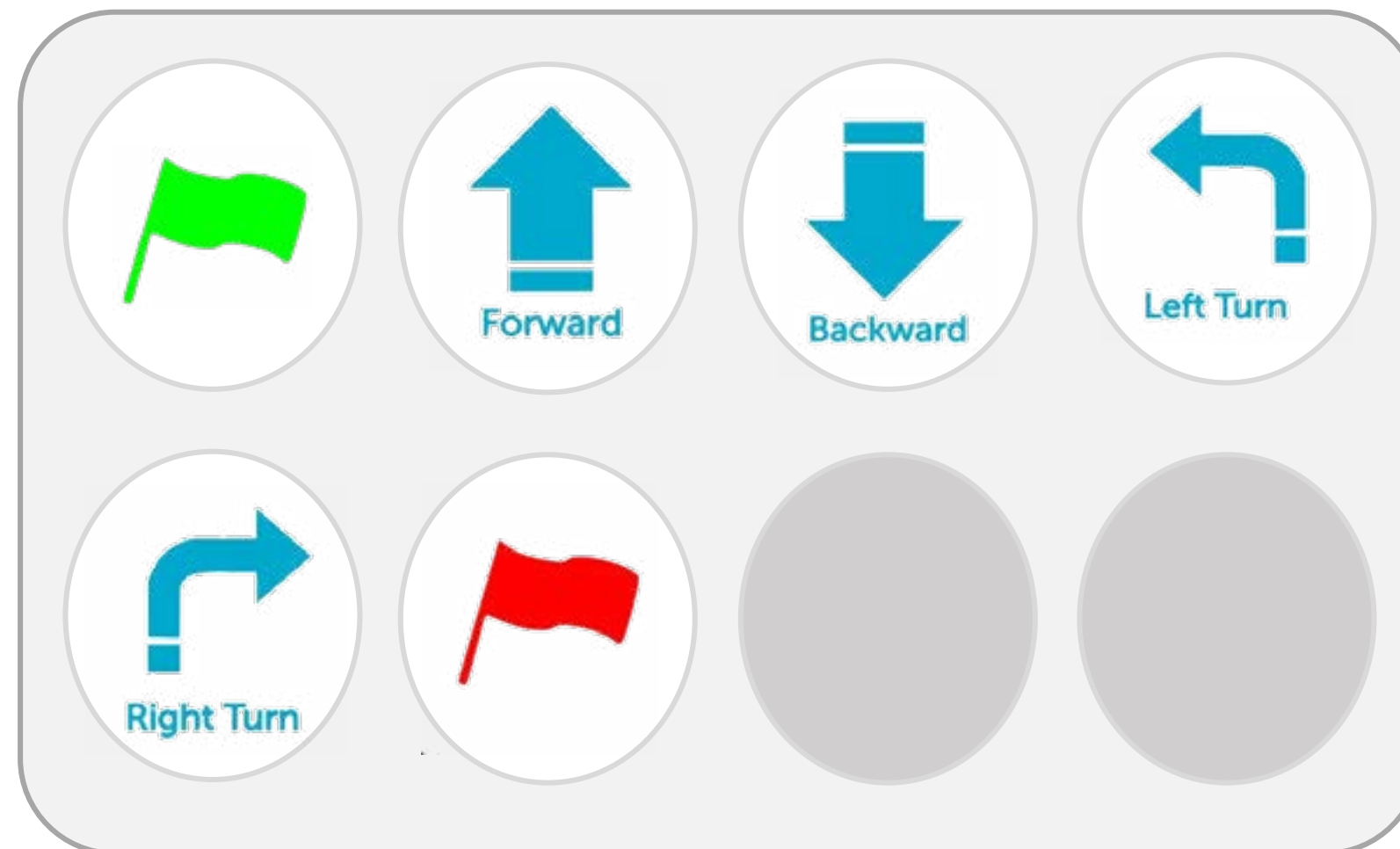
Step 1: Start

Step 2: Forward

Step 3: Backward

Step 4: Left Turn

Step 5: Right Turn

Step 6: End

Program 2: Programming the kangaroo to repeat its movements

Step 1: Start

Step 2: Forward

Step 3: Repeat 2 times

Step 4: Backward

Step 5: Repeat 5 times

Step 6: End

Ask them to switch out the forward or backwards chips with the other direction chips.

Once they have entered the code, ask the children what they expect the robot will do.

• Provide the children with time to work within their teams to:

• Modify the look of their robotic kangaroo model

• Modify the programs by changing the sequence of the coding chips from the previous programs. For example:

    » They can program their robot to move in different directions according to different duration (loops).

    » They can also replace the IF IN2 chip with the IF SOUND chip in CODE 3. and arrange the code so the robot moves only when the children clap their hands

IF SOUND