



robobricks TANGIBLE CODING

Dogs

Duration
60 minutes

Grade
1 to 2



Level - Basic construction & programming

LEARNING OUTCOMES:

After this lesson, students will be able to:

1. Discuss & explain traits of an animal like the dog.
2. Learn about the different parts of a dog.
3. Learn how dogs communicate via barking & wagging their tails.
4. Create programs that will use sensors to animate & emulate the movement & sound of a dog.

KEY VOCABULARY

- Mammals
- Dog
- Canine
- Puppy
- Barking

Show the children different pictures of dogs & ask them the following: (You can help the children with the following responses:)

1. What is a Dog?

A dog is a four legged animal.

2. What type of animal is it?

Dogs belong to the type of animals called as mammals.

3. Where can they be found?

Dogs can be found everywhere.

4. Are they big or small in size?

Dogs come in different sizes.

5. What makes a dog different from other animals?

Dogs have a keen sense of smell and hearing. Scientists say that a dog's nose is a thousand times better than a human's.

IMAGINE

Tory is visiting her cousin for her summer holidays. Her cousin has a puppy which is very friendly. The puppy wags its tail and barks whenever it wants someone to pet him. Tory had lots of fun with her cousin's puppy. Once the holidays got over, and Tory got home, she asked her parents if they can help her create a robot dog and make it wag its tail and bark just like her cousin's puppy.

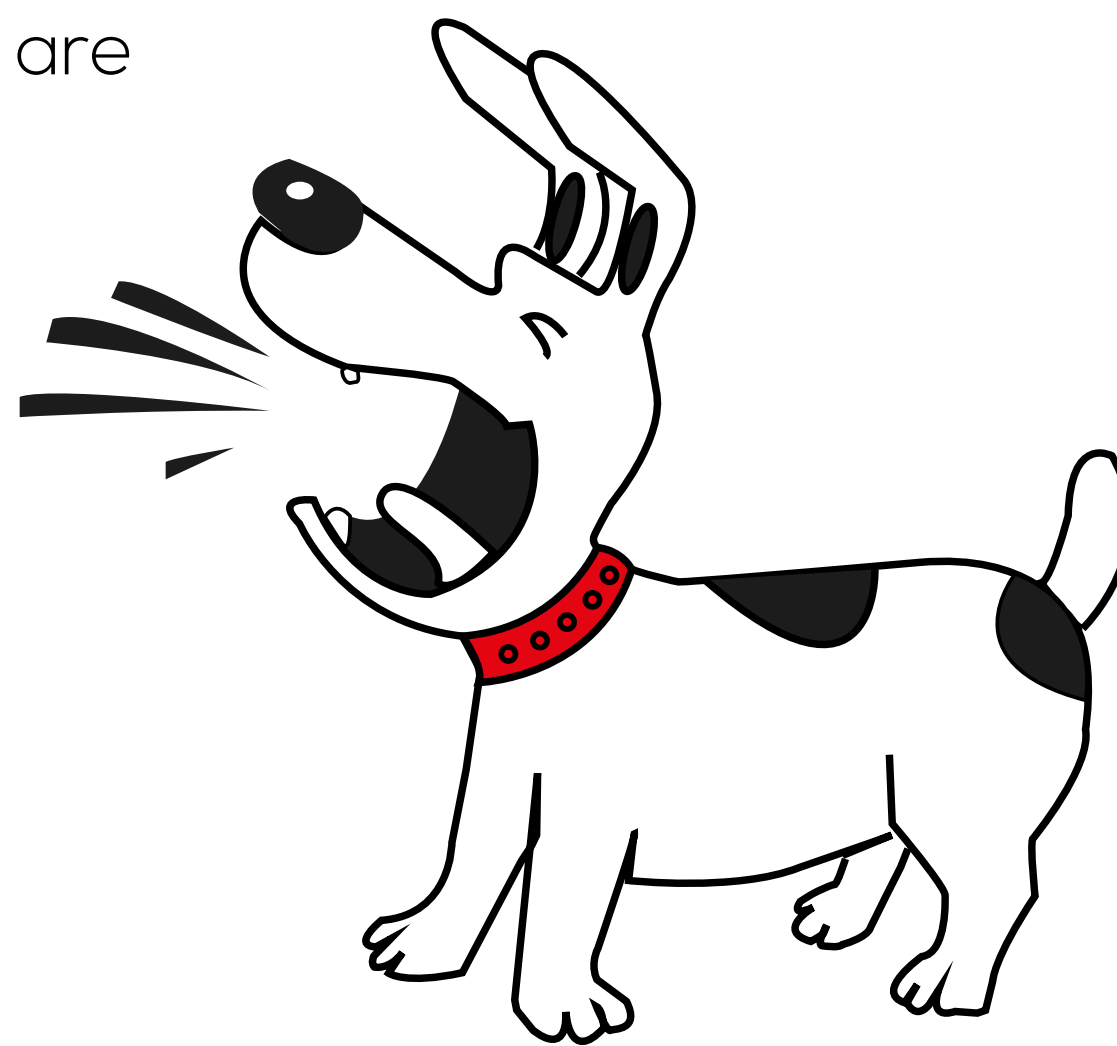
INVESTIGATE:

Before we build our robotic model, let us look at a few facts about Dogs:

1. Why do dogs bark?
2. Why do dogs wag their tail?

Dogs cannot speak like us humans so they communicate with us in different ways. One of them is barking:

- Dogs bark in different ways to indicate whether they are
 - happy
 - sad
 - hungry (or)
 - when they sense danger.



- Dogs also wag their tails to indicate the different emotions that they are experiencing:
 - A wagging tail indicates that the dog is happy or excited.
 - A tail that is relaxed & neutral indicates that the dog is relaxed.
 - A tail that is low or tucked in between the hind legs shows that the dog is scared.



IDEATE

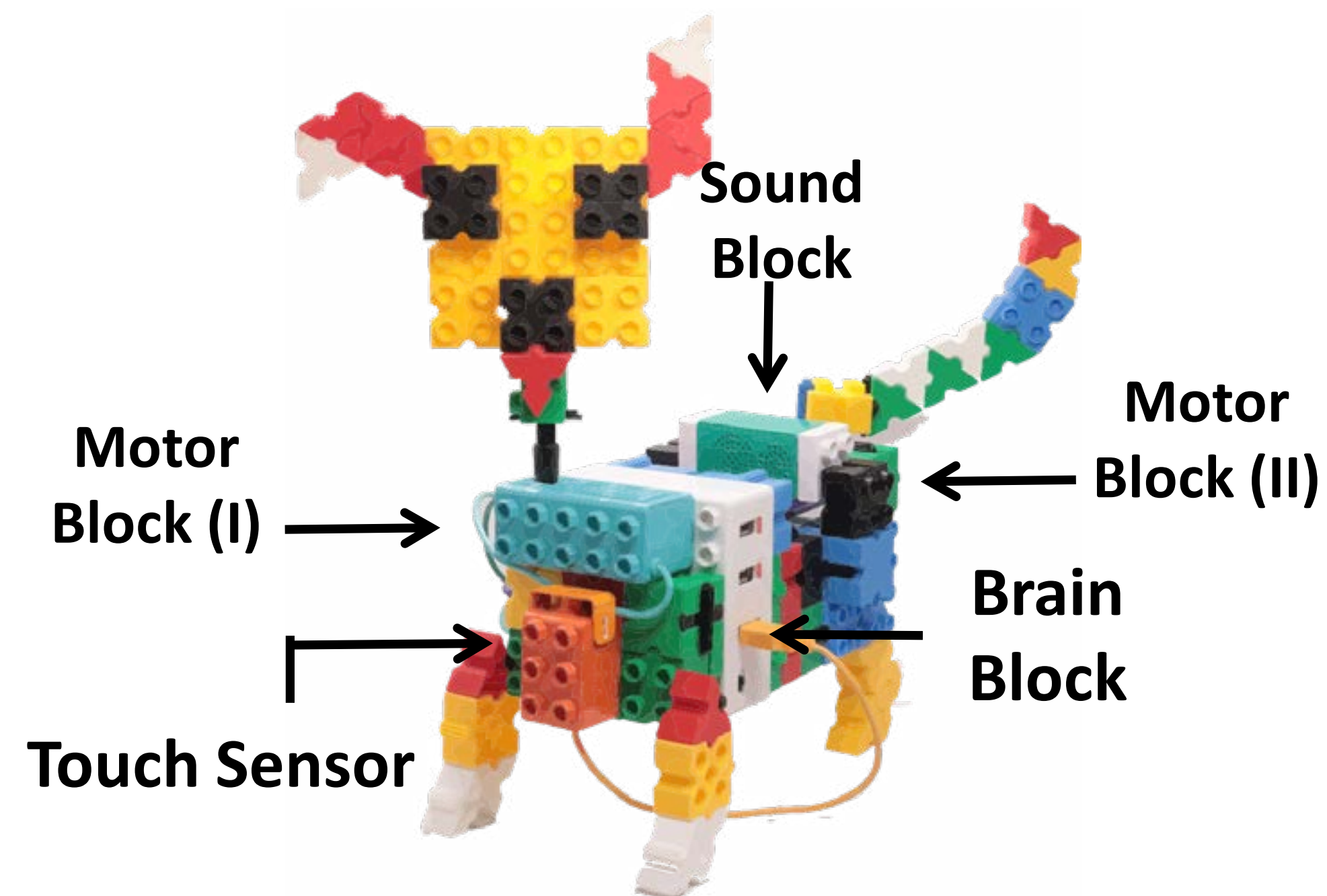
- Before we build our robotic model, let us look at the different parts of a dog.
- Our robot model should have the same parts



CREATE


Construct:

1. Instruct the children 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

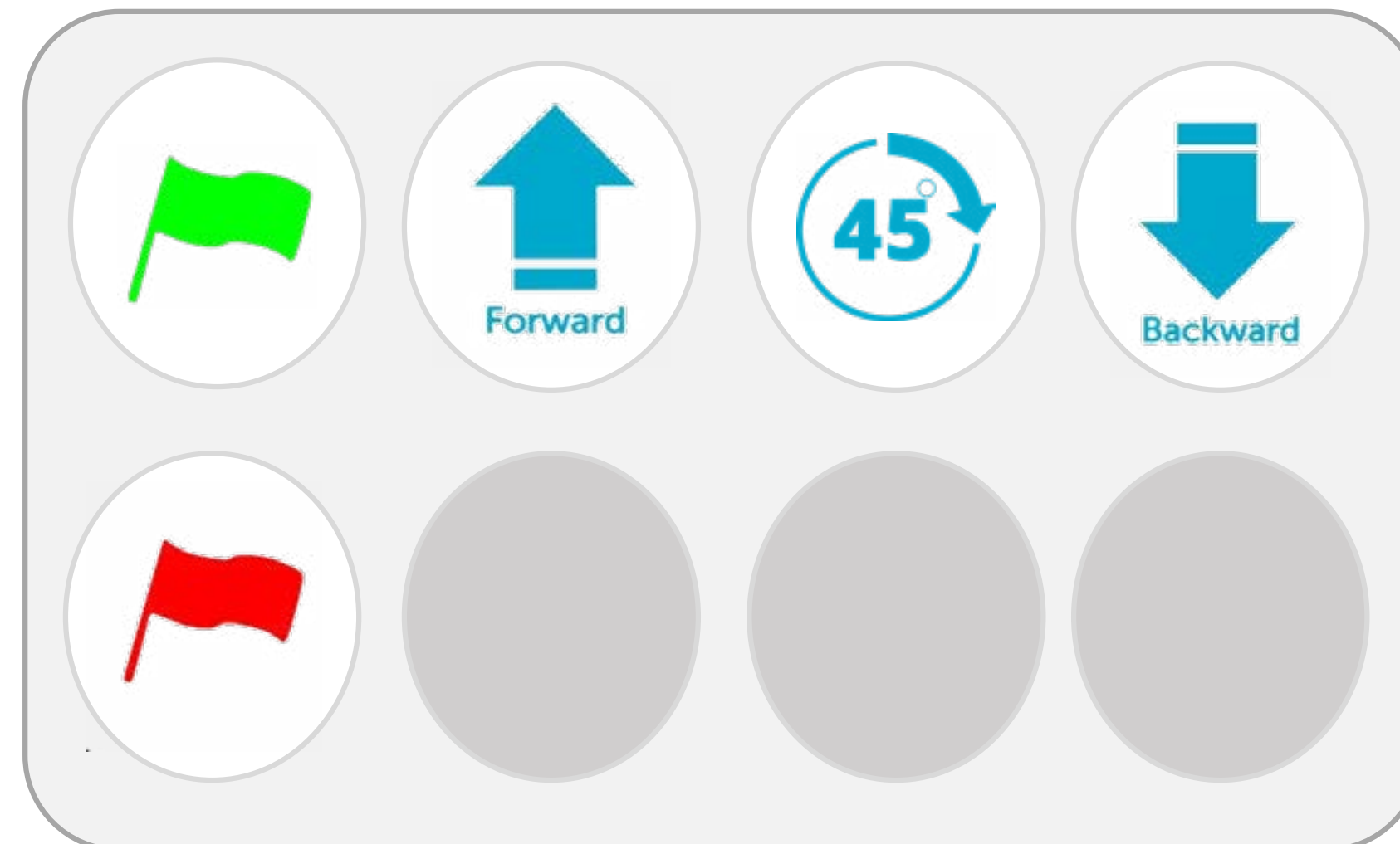


CREATE

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 dog to wag its tail



Step 1: Start

Step 2: Forward

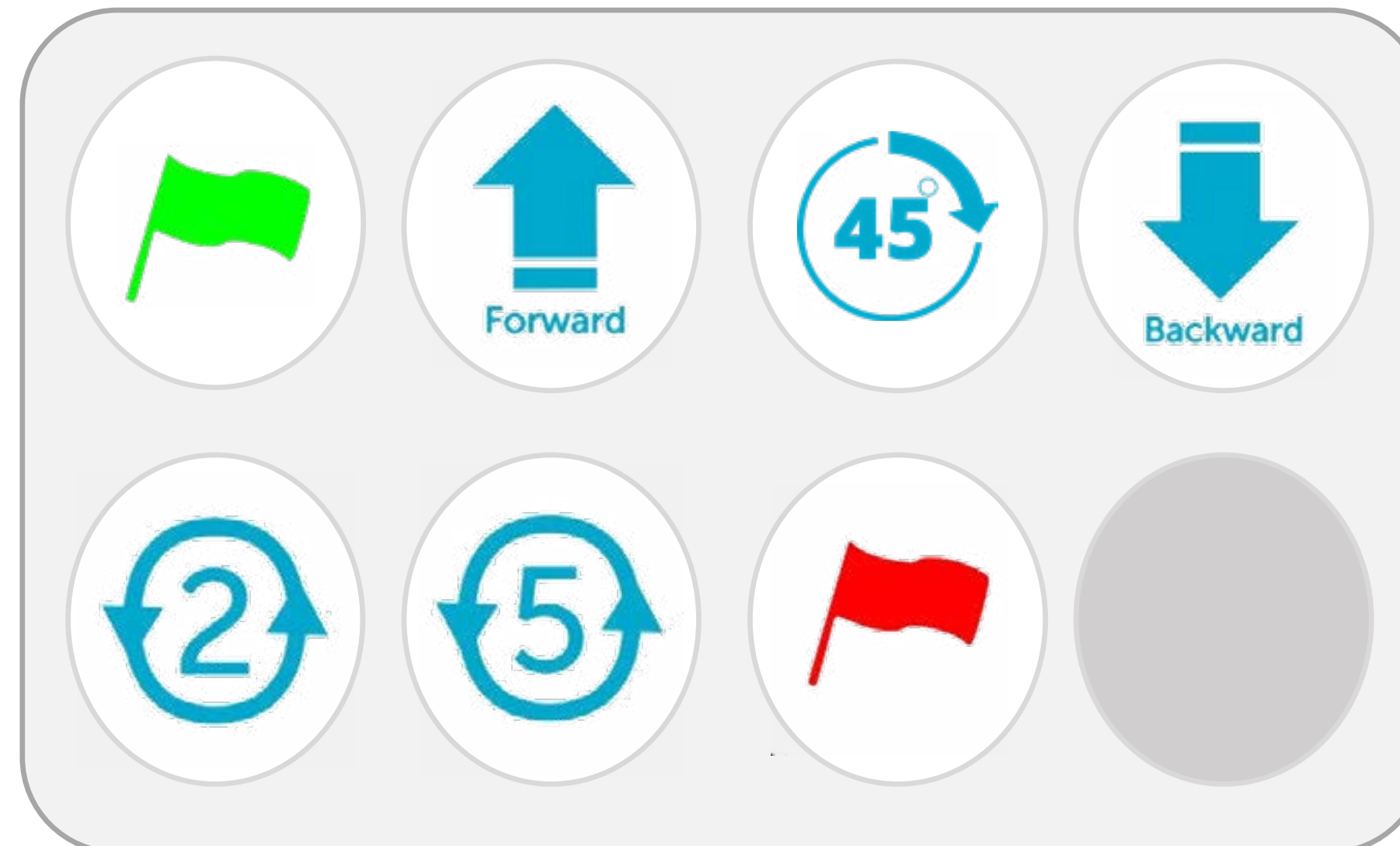
Step 3: 45 degree

Step 4: Backward

Step 5: 45 degree

Step 6: End

Program 2: Programming the dog to wag its tail many times



Step 1: Start

Step 2: Forward

Step 3: 45 degree

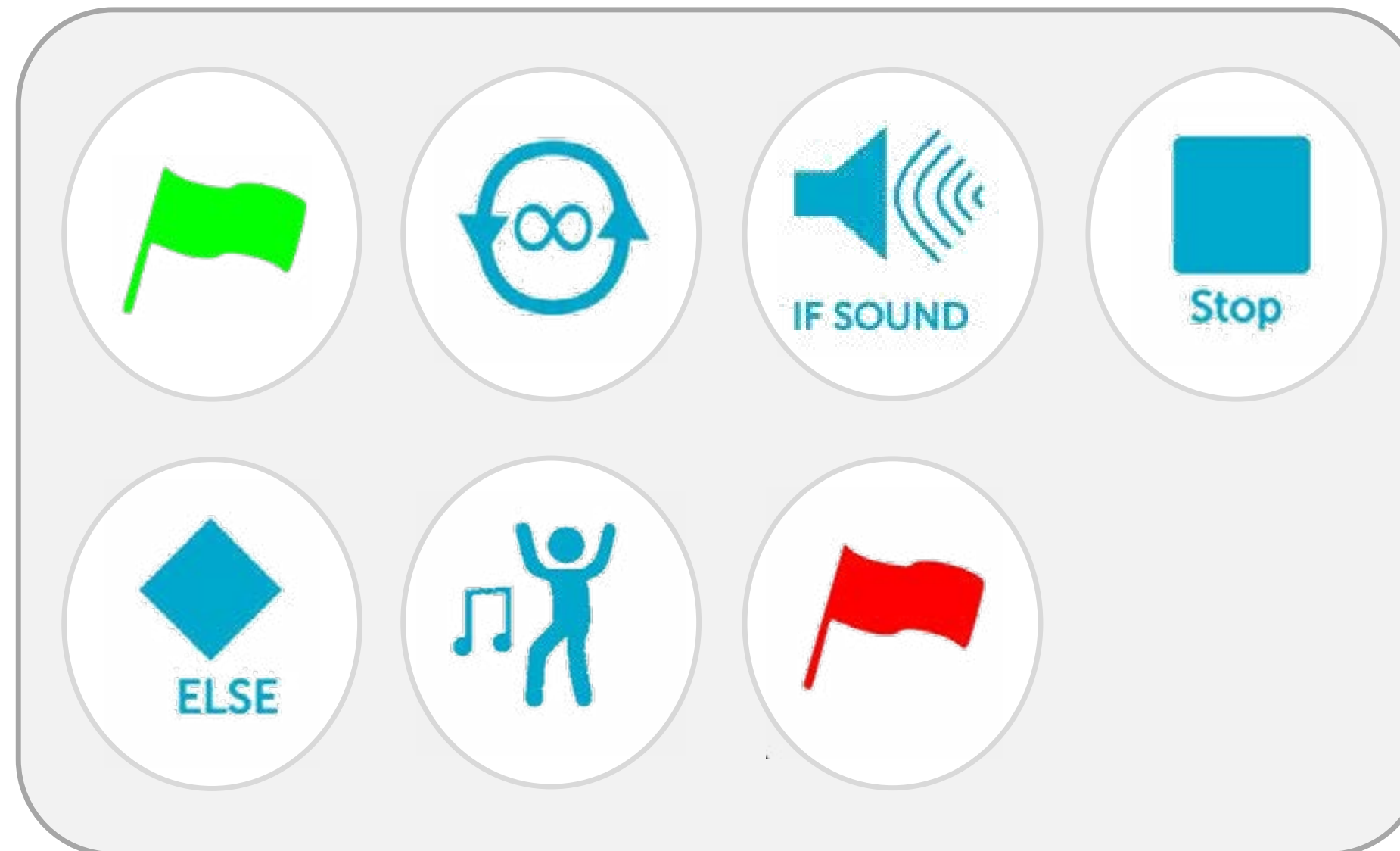
Step 4: Backward

Step 5: 45 degree

Step 6: Repeat 2 times OR 5 times

Step 7: End

Program 3: Programming the Robot Dog to bark



Step 1: Start

Step 2: Loop Forever

Step 3: If Sound Sensor detected

Step 4: Stop

Step 5: Else

Step 6: Tap 3 times - Dog sound

Step 7: End

REMIX

- Provide the children with time to work within their teams to:
- Modify the look of their dog robotic model
- Modify the programs by changing the sequence of the coding chips from the previous programs.
For e.g. They can make their robot bark when the touch sensor is activated.



SHARE

- **Before the session ends, ask some of the children to volunteer and :**
 1. Ask the children to raise their hands if they have a dog as a pet at home.
 2. Ask them to share stories about the fun things that their pet dog will do