



School Lessons 1-10: Robo's First Steps Worksheets

with Robo Wunderkind Robotics Kit



Project 1: Meet Robo!



Robo's Story:

Today, we have a special guest in our class! This is Robo, a smart robot that has come to our class to be our friend and learn with us!



Lesson Goal:

We will become engineers in order to assemble and control our first robot!

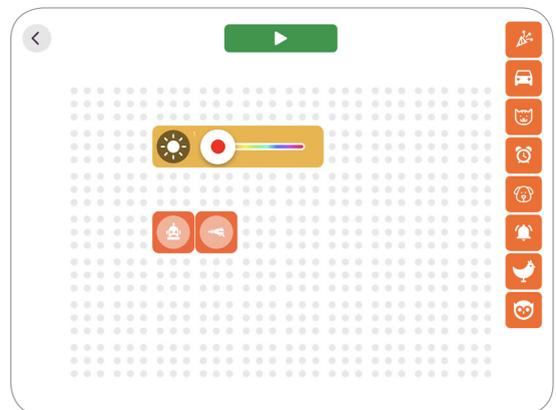
Keywords

1 It's Robo's brain!

2 Design is...

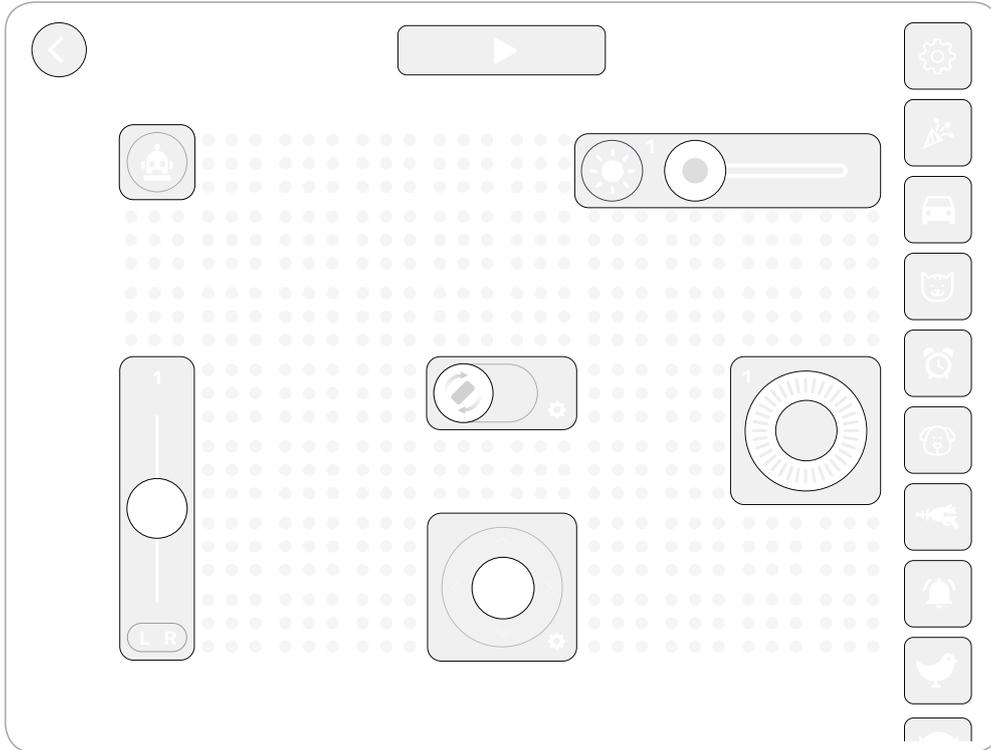


Build



Controls

3 Explore Robo's Modules and Controls



 What did I learn?



Project 2: Program Your First Robo!



Robo's Story:

Our new friend Robo is very excited to meet us and wants to say "Hi" to us. But can robots do something like this by themselves?



Lesson Goal:

To help Robo make sounds, we will become programmers and create our first program code in the Robo Code App.

Keywords

1 Imagine that you are a robot!

- **Control** your partner-robot to say "Hi! How are you doing?" using the buttons.
As you press the button, your partner-robot should react immediately by saying this word.

HI!

ARE

DOING?

HOW

YOU

- **Program** your partner-robot to say "Hi! How are you doing?" using the same buttons, but plan the order of words in the sentence in advance by drawing the arrows between the words. Once you have drawn all the arrows, your partner should say the whole sentence at once, following the order of your arrows.

HI!

ARE

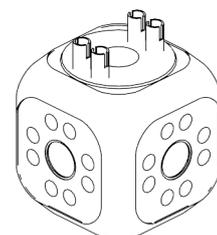
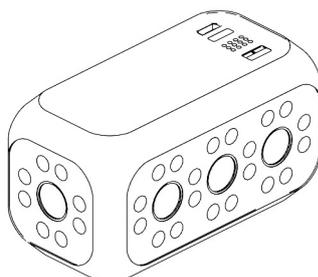
DOING?

HOW

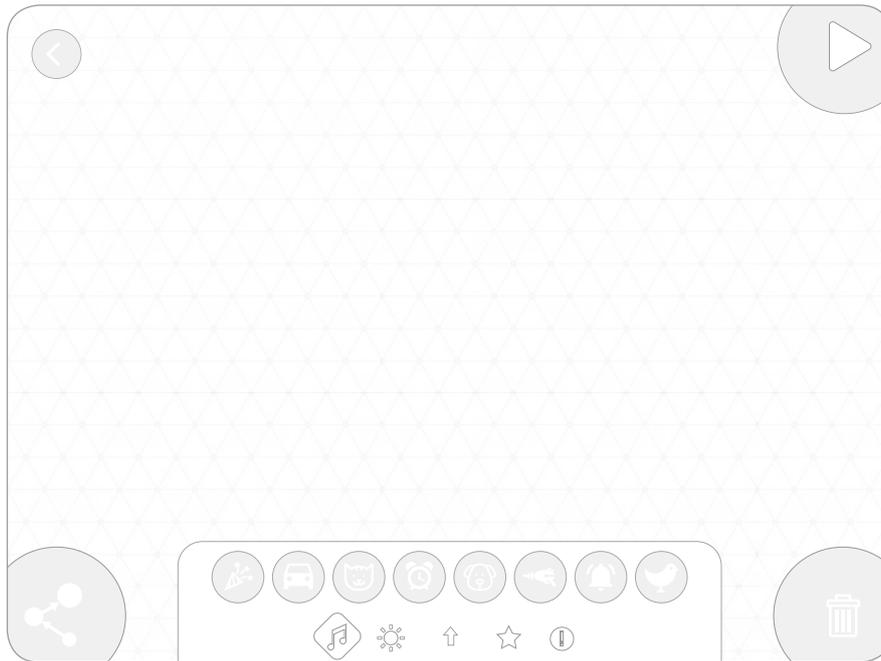
YOU



2 Color and name only the Main Block - Robo's brain. What is inside it?



3 Color and name Sound actions, Play button, Connection button and Trash bin



4 Imagine that you are a robot!

- Program your partner-robot to sing a song which consists of 5 musical notes. Draw the code for it.

- Program your partner-robot to sing a song which consists of 3 musical notes and never ends – it is a Loop! Draw the code for it.

 **What did I learn?**



Project 3: Robo Lights Up the Classroom



Robo's Story:

Robo is very happy to be your friend and wants to throw a small party with colorful lights!



Lesson Goal:

To help Robo throw a party, we will build a shining Robo and program it to light up in different colors.

Keywords

1 What does Robo want? How can we help it?

Robo wants to _____

1) Which Modules will we need?

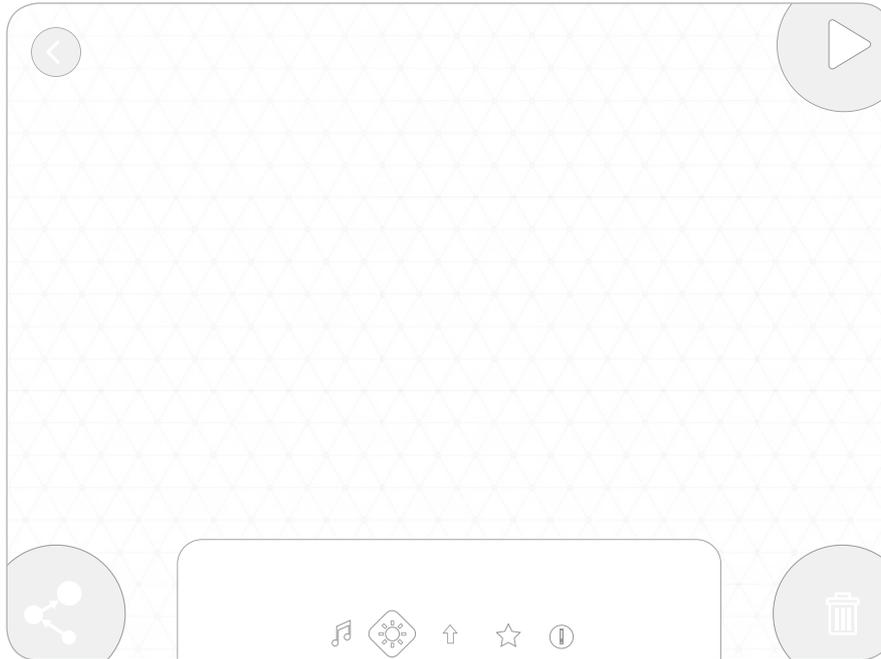
2) Build a Robo _____

3) Program a Robo _____

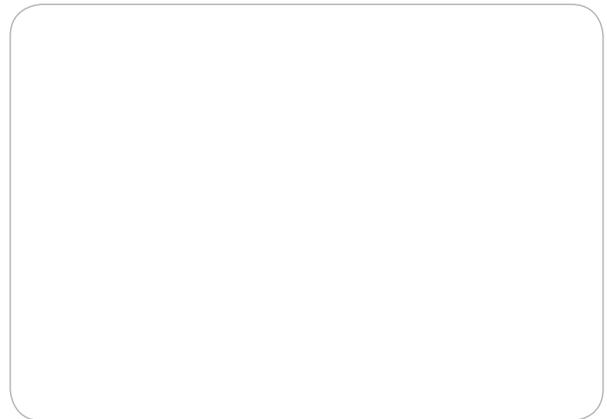
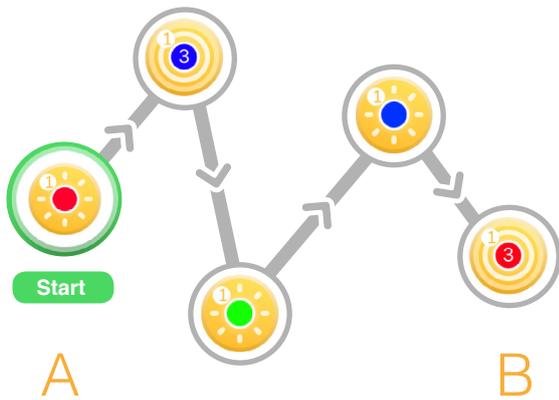
2 Visuals



3 👤👤 **Make a Robo-party code which consists of 5 Visuals and one Loop. Color the coding buttons you used to make a code.**



4 👤👤 **Reverse the code - rewrite it so it goes in the opposite direction from B to A. How can you do it?**



💭 **What did I learn?**



Project 4: Robo-car Drives Around



Robo's Story:

Robo is a very curious creature who likes to discover the surrounding world! Robo wants to travel, but first Robo needs to learn how to drive.



Lesson Goal:

To help Robo drive around, we will build and program a Robo-car.

Keywords

1 What does Robo want? How can we help it?

Robo wants to _____

1) Which Modules will we need?

2) Build a Robo _____

3) Program a Robo _____

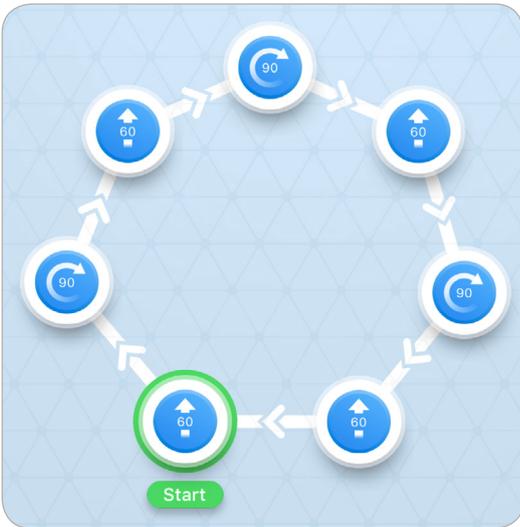
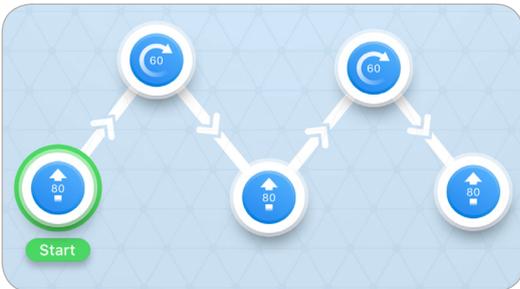
2 Motors: How to attach them?



3  /  Movement



4  Draw the shape your Robo will make following the code.



 What did I learn?



Project 5: Robo's First Journey



Robo's Story:

Now it's time for Robo's first journey! Where will your Robo travel to, and why? Who will it meet?



Lesson Goal:

To help Robo have its first journey, we will build and program a Robo-traveller and combine all the Actions we had learned before.

Keywords

1 What does Robo want? How can we help it?

Robo wants to _____

1) Which Modules will we need?

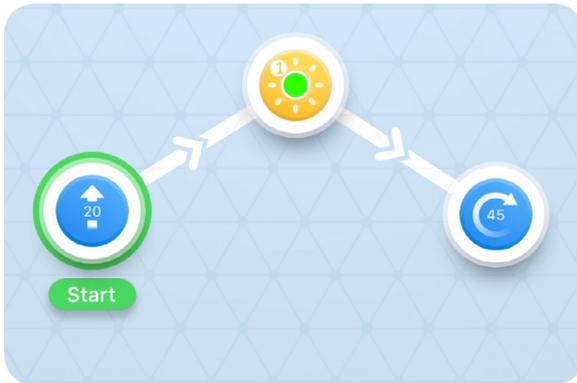
2) Build a Robo _____

3) Program a Robo _____

2 Draw the parts missing to build your Robo-traveller.



3  **Modify the code to form a State which consists of the largest number of Actions. How many Actions can be in one State in such a code?**



4  **Imagine that you are a robot!**

- Think about actions in your life which you can do simultaneously – at the same time.
- Draw or write down a code with parallel actions from your real life.

 **What did I learn?**



Project 6: Robo Travels to Toytown



Robo's Story:

Robo is invited to visit Toytown! To get there, Robo has to travel a long way avoiding obstacles and making tricky turns.



Lesson Goal:

To help Robo get to Toytown, we will program Robo-vehicle to avoid obstacles and cope with some challenges.

Keywords

1 What does Robo want? How can we help it?

Robo wants to _____

1) Which Modules will we need?

2) Build a Robo _____

3) Program a Robo _____

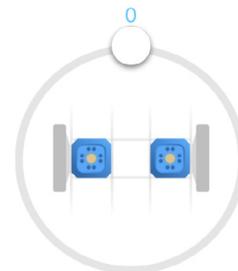
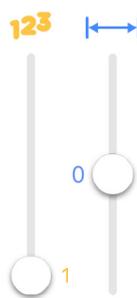
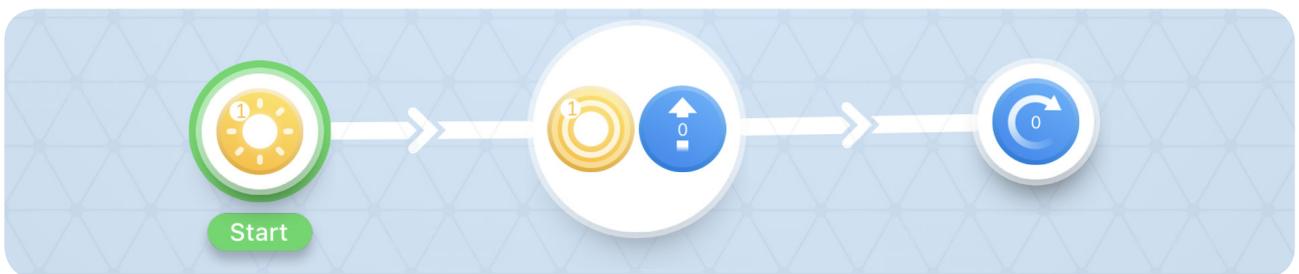
2 Draw the road to Toytown with different turns and obstacles; create a code to drive through these challenges.



3 Create States in your code for Robo; draw them here.

- 2 different Actions in one State
- 3 different Actions in one State
- only 1 Action in State - *Is it a State?*

4 Action's Lifespan: Set the Lifespan for each Action in this code.



- How many Transitions will take place in this code?
- How do you know?

What did I learn?



Project 7: Robo Looks Around



Robo's Story:

Now it's time to meet other creatures - the toys! Robo wants to learn how to look around in order to communicate with the fun toys.



Lesson Goal:

To help Robo look around, we will build a Robo with a head that can be programmed to turn around using different motors.

Keywords

1 What does Robo want? How can we help it?

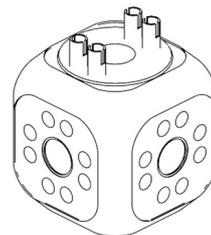
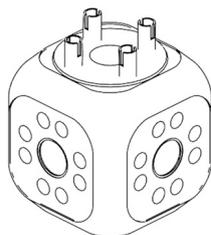
Robo wants to _____

1) Which Modules will we need?

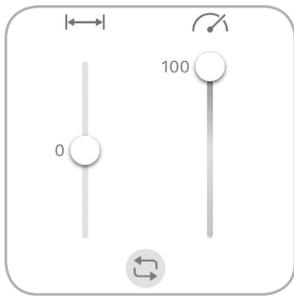
2) Build a Robo _____

3) Program a Robo _____

2 Motors: are they different or the same?



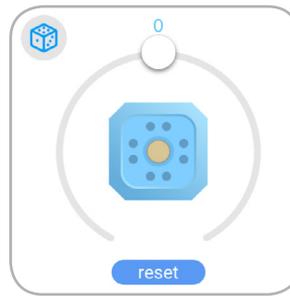
3 / Movement: Different or the same?



Distance

Speed

Reverse button



Angle degree

Zero position

Reset button



4 Imagine that you are a robot!

- Which Motor will you use to turn your head?
- Which Motor will you use to move your wrists, knees, feet?
- Draw yourself as a robot with different motors!

 What did I learn?



Project 8: Robo Meets Friends



Robo's Story:

Today is a significant day for our Robo: we are going to help Robo meet and interact with other toy creatures!



Lesson Goal:

To help Robo communicate with the other toys, we will build Robo using all of the learned Modules, and program different Actions.

Keywords

1 What does Robo want? How can we help it?

Robo wants to _____

1) Which Modules will we need?

2) Build a Robo _____

3) Program a Robo _____

2 Design: Build

- Which function does each Module have?



3 Tasks and Code design.

- Create a code for Robo to perform. Can it be Sequential code or Parallel execution? Draw one of the codes you created.
 - 1) Robo drives and emits different lights to greet new friends.
 - 2) Robo turns its head saying “Hi” and greeting a new friend with a light.



4 Imagine that you are a robot!

What actions in your life you do:

- 1) One after another - as sequential code?
- 2) Simultaneously at the same moment - parallel?

Draw or write down your code(s).

 **What did I learn?**



Project 9: Robo Makes a Surprise



Robo's Story:

Robo is happy that it met some fun toys and wants to create a surprise for these new friends.



Lesson Goal:

To help Robo design a surprise for his new friends, we will learn about the Engineering Design Process and then use it to build and program the Robo-project.

Keywords

1 Recall some of the projects we created to help Robo.

- What was the reason for each project?

2 What are the steps we usually take to create a Robo-project?

- 1) _____
- 2) _____
- 3) _____

- Do you think that there is a universal plan for creating a project?

3 Engineering Design Process

Step 1. Identify a reason.

Step 2. Brainstorm.

Step 3. Evaluate and pick one.

Step 4. Sketch and plan.

Step 5. Work on the solution.

Step 6. Finalize: Is everything ready?

Step 7. Present the solution:

Step 8. Reflect: How was it?

4 Practice the Engineering Design Process:

⚠ Use My Project Worksheet to follow the steps and create your own Robo-project!

 What did I learn?



Project 10: What is YOUR Robo?



Robo's Story:

Now it is your turn to decide which device or character you would like your Robo to transform into!



Lesson Goal:

To transform your Robo into your own project, follow the steps of the Engineering Design Process.

Keywords

1 Robo - Project and Engineering Design Process

- What project did we create last time?
- What is the Engineering Design Process?
- How did it help us with our last project?

2 Think about any project you need to make for school.

- What steps will you take?



3 Put the steps of the Engineering Design Process in the right order: number them and draw arrows between the steps as you follow them.

Step___ **Brainstorm:** What are the solutions?

Step___ **Identify a reason:** What is the problem or idea?

Step___ **Sketch and plan:** What will I need?

Step___ **Evaluate and pick one:** What would happen if...?

Step___ **Finalize:** Is everything ready?

Step___ **Work on the solution:** Build and program, test, repeat!

Step___ **Reflect:** How was it?

Step___ **Present the solution.**



4 Practice the Engineering Design Process:

ⓘ Use My Project Worksheet to follow the steps and create your own Robo-project!



What did I learn?



My Robo Project

 **Reason** _____

 **Brainstorm** _____

 **Best Idea** _____

 **Plan**

- Modules _____
- Other materials _____
- Code _____

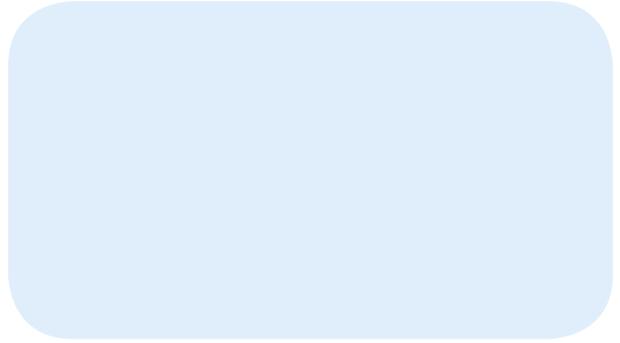
My Robo's Name _____

My Robo's Story _____

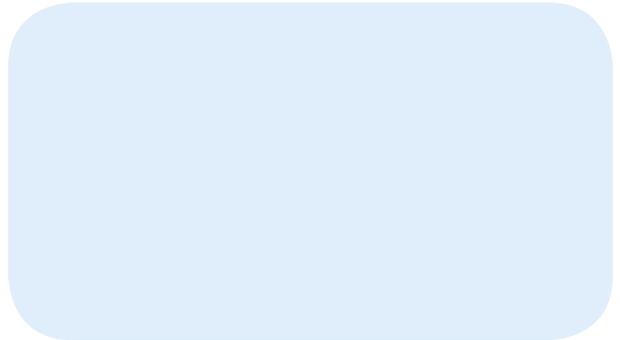
My Robo's Design - Build

My Robo's Code

1. _____



2. _____



Reflect: How was it?

What worked well

What to improve
