

# Math Projects: Arithmetic Worksheets

with Robo Wunderkind Robotics Kit



# Project 1: Robo Sends Light Signals



## Robo's Story:

Some robots can speak and some cannot, but there are many different types of communication between robots, such as different light signals, secret codes or ciphers. Can our Robo speak? Can we teach it to create a cipher using the light signals?



## Project Goal: \_\_\_\_\_

### Keywords

1



Robo \_\_\_\_\_

Modules \_\_\_\_\_

2



Program different light signals



= \_\_\_\_\_



= \_\_\_\_\_

3



Create a code with light signals



= only even numbers



= only odd numbers

• Reverse the code

• How did you do that?

• Red, blue,  = Even numbers

• Yellow, green  = Odd numbers



## 4 Encode a message

### Cipher Key

- |   |                               |    |                                |
|---|-------------------------------|----|--------------------------------|
| 1 | How are you?                  | 2  | Hi!                            |
| 3 | What is your name?            | 4  | I am Robo!                     |
| 5 | Do you want to play together? | 6  | I want to be friends with you! |
| 7 | What kind of robot are you?   | 8  | I want to play together!       |
| 9 | Do you want to learn math?    | 10 | I am a very friendly robot.    |

### Messages

1. Hi! I am Robo! What is your name?



2. How are you? What is your name? I want to play together! Do you want to learn math?



3. I am a very friendly robot. I want to be friends with you! Do you want to play together?



4. I am Robo. I am a very friendly robot. What is your name? What kind of robot are you?



5. Your message \_\_\_\_\_  
\_\_\_\_\_



## 5 / Create own cipher

### Cipher Key

### Messages

 **What did I learn?**



# Project 2: Robo Decodes a Secret Message



## Robo's Story:

Robo received a cipher – a message from the other robots. There is a key for decoding it but Robo will need our help to do it.



## Project Goal: \_\_\_\_\_

### Keywords

**1**

**Robo** \_\_\_\_\_

**Modules** \_\_\_\_\_

**2**

**Number of blinks**

$1+3 = \bigcirc$

$7+1 = \bigcirc$

$10-1 = \bigcirc$

$2-1 = \bigcirc$

$2+3 = \bigcirc$

$4+2 = \bigcirc$

$9-3 = \bigcirc$

$7-4 = \bigcirc$

**3**

**Calculate and program**


4 times + 2 times + 1 time + 3 times =



10 times - 3 times - 2 times - 2 times =



4 times + 1 time - 2 times + 5 times + 2 times - 5 times =



each Action + 2 sec =



each Action - 2 sec =



= \_\_\_\_\_



= \_\_\_\_\_

## 4 Decode a message

### Cipher Key

- 2 We are friendly robots.
- 4 Do you like traveling?
- 6 Visit us in Robot City!
- 8 Can you drive?
- 10 Do you know other robots?

- 1 We live in Robot City.
- 3 Do you want to be our new friend?
- 5 Hello Robo!
- 7 We want to be your new friends.
- 9 We hope to see you soon!

### Messages

1.  $2+3 = \bigcirc$   $1+1 = \bigcirc$   $6-5 = \bigcirc$  →

2.  $3+4 = \bigcirc$   $10-7 = \bigcirc$   $3+3 = \bigcirc$  →

3.  $10-7+1 = \bigcirc$   $3+4-1 = \bigcirc$   $10-1-1 = \bigcirc$  →

4.  $2+2-2 = \bigcirc$   $1+1+8 = \bigcirc$   $5-1+5 = \bigcirc$  →

5. Your message →

## 5 / Create own cipher

### Cipher Key

### Messages

 What did I learn?



# Project 3: Robo Decodes a Secret Map



## Robo's Story:

Robo received a secret message from the other robots - it's a map to Robot City. It is written in a special cipher and Robo needs to decode it.



## Project Goal: \_\_\_\_\_

### Keywords

1



Robo \_\_\_\_\_

Modules \_\_\_\_\_

2



Distance



Angle



$3 \times 5 =$



$5 \times 5 =$



$5 \times 6 =$



$7 \times 5 =$



$7 \times 10 =$



$10 \times 3 =$



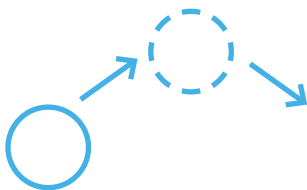
$10 \times 9 =$



$10 \times 10 =$



- **Connect** all Movement Actions into one code, draw a code



3



Decode a map



$7 \times 5 =$



1

$10 \times 6 =$



3



$5 \times 8 =$



5

$9 \times 5 =$



7

$5 \times 4 =$



2

$9 \times 10 =$



4

$11 \times 10 =$



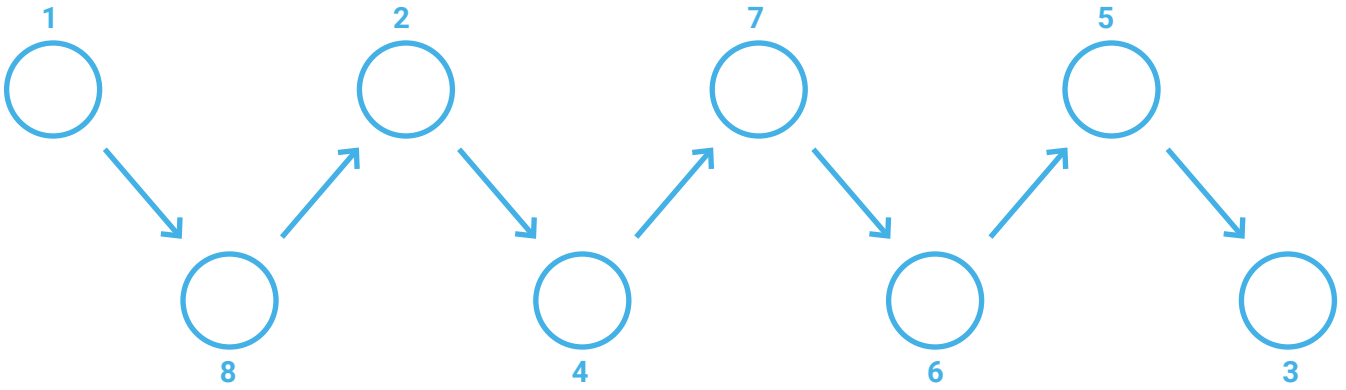
6

$10 \times 7 =$



8

**4**  Draw a map you decoded, program a Robo-vehicle to perform it



**5**  /  Create own map

Map

Cipher

 What did I learn?



# Project 4: Robo Travels to Robot City



## Robo's Story:

Robo wants to travel to Robot City and meet other robots



## Project Goal: \_\_\_\_\_

### Keywords

1 **Robo** \_\_\_\_\_

**Modules** \_\_\_\_\_

2 **Distance** **Angle**

$80 \div 2 =$ <input type="text"/>	$180 \div 3 =$ <input type="text"/>	$90 \div 3 =$ <input type="text"/>	$280 \div 4 =$ <input type="text"/>
$100 \div 5 =$ <input type="text"/>	$1200 \div 60 =$ <input type="text"/>	$180 \div 2 =$ <input type="text"/>	$6000 \div 20 =$ <input type="text"/>

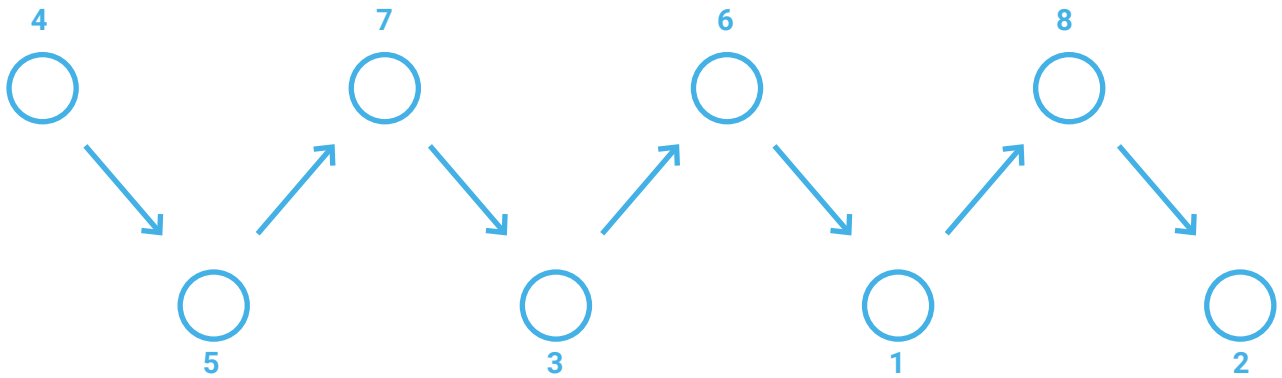
• **Connect** all Movement Actions into one code, draw a code

3 / **Decode a map and travel**

$70 \div 2 =$ <input type="text"/>	$1400 \div 20 =$ <input type="text"/>	$80 \div 8 =$ <input type="text"/>	$1800 \div 30 =$ <input type="text"/>
1	2	3	4
$100 \div 4 =$ <input type="text"/>	$9000 \div 100 =$ <input type="text"/>	$90 \div 2 =$ <input type="text"/>	$1000 \div 10 =$ <input type="text"/>
5	6	7	8



**4**  Draw a map you decoded, program your Robo to perform it



**5**  /  Create your own map

Map

Cipher

 What did I learn?



# Project 5: Robo Travels to Robot City



## Robo's Story:

Robo arrives in Robot City, ready to meet other robots. It will need to make different light signals, sounds and movements to decode and encode ciphers and communicate with other robots.



## Project Goal: \_\_\_\_\_

### Keywords

#### 1 Robo \_\_\_\_\_

#### Modules \_\_\_\_\_

#### 2

= Ordinal Number = Lifespan

= Distance

= Angle

$3+4 = \bigcirc$

$7+1 = \bigcirc$

$50+30 = \bigcirc$

$10+60 = \bigcirc$

$15-6 = \bigcirc$

$18-17 = \bigcirc$

$100-40 = \bigcirc$

$90-75 = \bigcirc$

$2 \times 2 = \bigcirc$

$3 \times 3 = \bigcirc$

$11 \times 5 = \bigcirc$

$10 \times 10 = \bigcirc$

$15 \div 5 = \bigcirc$

$45/7 = \bigcirc$

$90 \div 9 = \bigcirc$

$150 \div 3 = \bigcirc$

• **Connect** all Actions into one code.

#### 3

#### Solve all challenges and complete Robo cipher

$6+1 = \bigcirc$   
1

$6+4-1 = \bigcirc$   
5

$90-5-5 = \bigcirc$   
9

$50+20+20 = \bigcirc$   
13

$10-5 = \bigcirc$   
2

$3-2+6 = \bigcirc$   
6

$45+5+25 = \bigcirc$   
10

$300-40+20 = \bigcirc$   
14

$1 \times 1 = \bigcirc$   
3

$2 \times 2 \times 2 = \bigcirc$   
7

$4 \times 5 \times 2 = \bigcirc$   
11

$12 \div 2 \times 10 = \bigcirc$   
15

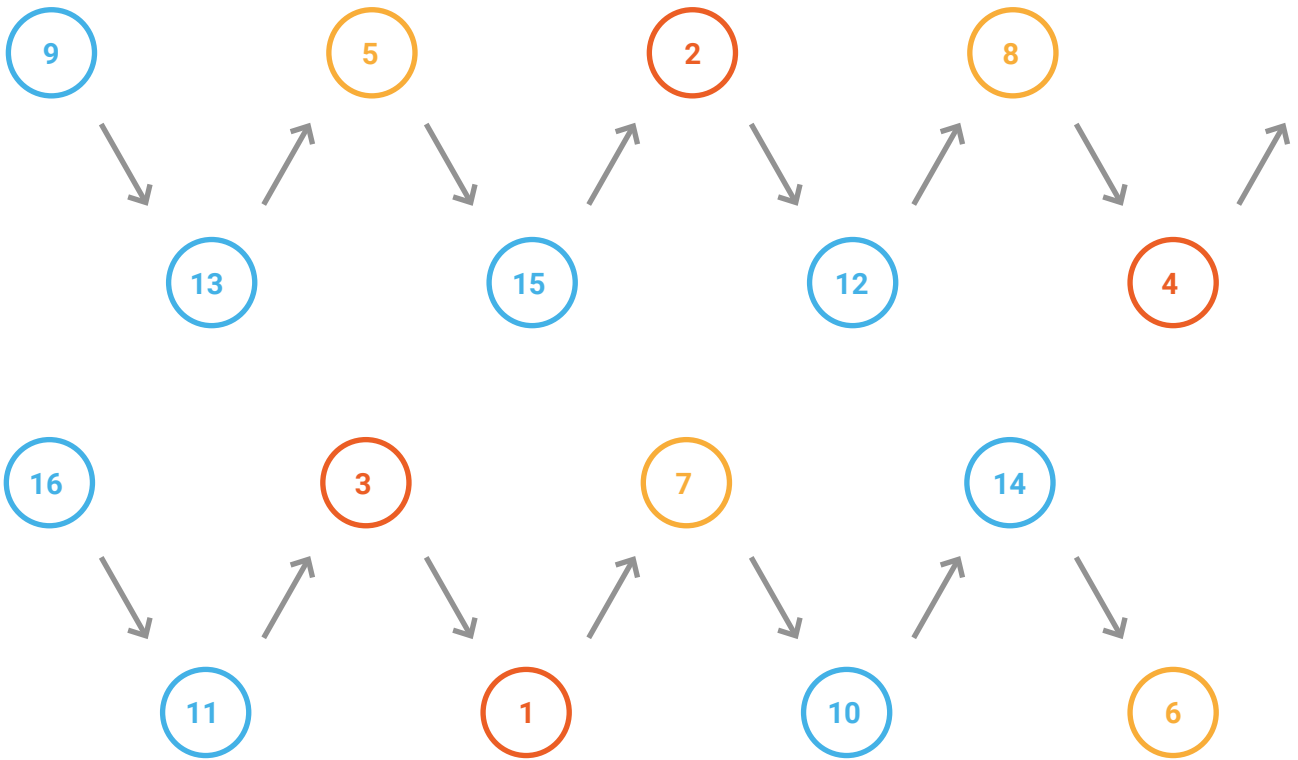
$16 \div 2 = \bigcirc$   
4

$90 \div 3 \div 10 = \bigcirc$   
8

$600 \div 3 \div 2 = \bigcirc$   
12

$150 \times 2 \div 3 = \bigcirc$   
16

**4**  Complete the Robo cipher and program your Robo to perform it



**5**  /  Create your own map

Map

Cipher

 What did I learn?

