WINTER WONDERLAND

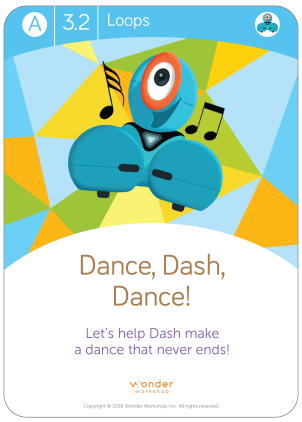
Up for a Challenge?

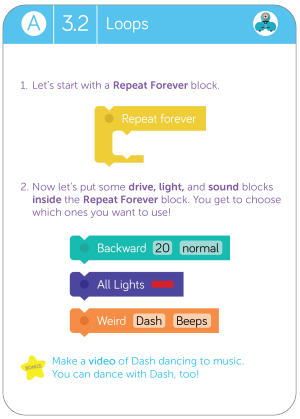
Dashing Through the Snow!

MATERIALS

Dash robot

Blockly app





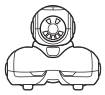
Dash Challenge Card A 3.2

STEPS

1. Use "Ready, Set, Go!" Dash Challenge Card to create a sequence of commands for Dash.
2. Open the Blockly app on your compatible device* and create a new program.
3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
4. Press the green PLAY button to test your program.

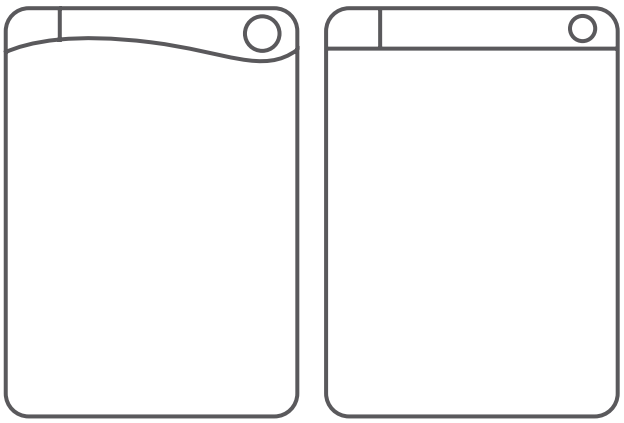
What Can You Do with Cue?

MATERIALS



Cue robot

Cue app



Blank Challenge Card

STEPS

1. Look at the "Ready, Set, Go!" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar race challenge for Cue.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device* and create and test your challenge.
5. Share away.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

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*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

A 3.2 Loops

Dance, Dash, Dance!

Let's help Dash make a dance that never ends!

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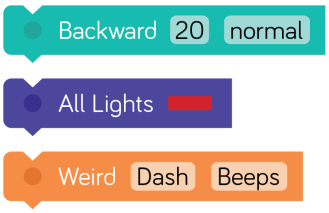
A 3.2 Loops

1. Let's start with a **Repeat Forever** block.

2. Now let's put some **drive, light,** and **sound** blocks **inside** the **Repeat Forever** block. You get to choose which ones you want to use!



BONUS Make a **video** of Dash dancing to music. You can dance with Dash, too!

Design your own Challenge Card. Cut and fold/glue when you are done.

Now Let's Get Creative!

Holiday cheer is in the air! Can you hear it?
It's time to get musical with Dash and Cue and few "Jingle Bells" to create a music video.
Will you or the robot be the star?

MATERIALS

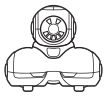

Dash


Xylo app

STEPS

1. For Dash, download the Xylo app.
2. Next, attach the Xylophone to Dash (see directions: https://www.makewonder.com/play/setup/#xylophone).
3. Pair your device with your robot and then calibrate the head mallet per the app's instructions.
4. Use the following sheet music to program "Jingle Bells" in honor of winter.
5. What winter dance moves might you create to add to a music video?

MATERIALS


Cue


Cue app

STEPS

1. Want to harmonize with Cue in a music video?
2. Cue has 30-second recording capabilities. Record yourself singing the song lyrics below.
3. Sequence your sound clips in the Cue app with the WAIT command as needed.
4. Then, as your program runs, play an instrument along with Cue's singing, or you could record a beatbox drum track, and sing along as Cue runs your rhythmic program.
5. Try programming Cue's LEDS for some visual effects -- can you make them count the beats in a measure?

Jingle Bells

E E E - E E E - E G C D E - - - F F
Jin- gle bells, jin- gle bells, jin- gle all the way. Oh what

F F F E E E E E D D E D - G -
fun it is to ride in a one horse op- en sleigh!

E E E - E E E - E G C D E - - - F F
Jin- gle bells, jin- gle bells, jin- gle all the way. Oh what

F F F E E E E G G F D C
fun it is to ride in a one horse op- en sleigh!

VOCABULARY

Loop A command used to repeat a portion of code until a desired process is complete.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

Time to Go Offline!

Creative idea and photo from *Little Bins for Little Hands*.

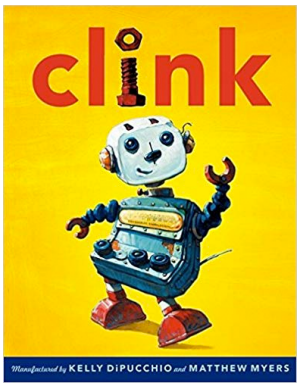
Want to write a word in code? Use the binary alphabet.

1. Write down a word -- try your name or a word associated with winter.
2. Next, use one colored craft bead to represent 0 and another colored craft bead to represent 1. Find each letter in the Binary Alphabet.
3. Choose a third colored bead to separate letters.
4. Letter by letter, add beads to a pipe cleaner. Remember to slide right to left so that your message begins with the correct letter. Then bend the ends of the pipe cleaner.
5. You can create a bracelet, an ornament, or even a shape like a candy cane!

Binary Alphabet

A	1000001	N	1001110
B	1000010	O	1001111
C	1000011	P	1010000
D	1000100	Q	1010001
E	1000101	R	1010010
F	1000110	S	1010011
G	1000111	T	1010100
H	1001000	U	1010101
I	1001001	V	1010110
J	1001010	W	1010111
K	1001011	X	1010111
L	1001100	Y	1011001
M	1001101	Z	1011010

Recommended Reading



Clink
by Kelly DiPucchio

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read so far:

FUN FACT

The smallest robot is called a nanobot. It is less than 1/1000th of a millimeter.

Activities Packet #2

WINTER WONDERLAND

Up for a Challenge?

Dashing Through the Snow!

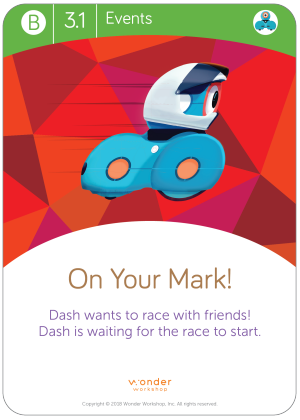
MATERIALS

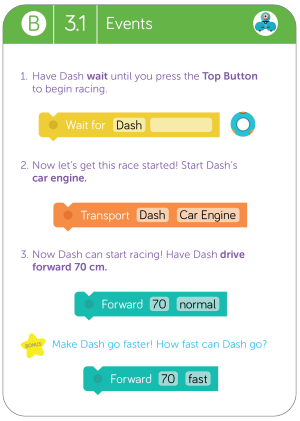
Dash robot

Blockly app

3 18 oz. plastic cups

Painter's tape





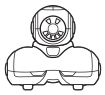
Dash Challenge Card B 3.1

STEPS

1. Use the "Recycling Rush!" Dash Challenge Card to create a sequence of commands for Dash.
2. Open the Blockly app on your compatible device* and create a new program.
3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
4. Press the green PLAY button to test your program.

What Can You Do with Cue?

MATERIALS

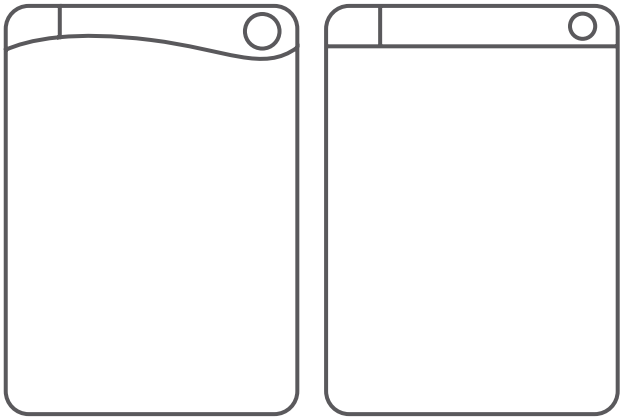


Cue robot

Cue app

3 (or more) 18 oz. plastic cups

Painter's tape



Blank Challenge Card

STEPS

1. Take a look at the "Recycling Rush!" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar race challenge for Cue.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device*.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

wonder workshop

*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

B 3.1 Events

On Your Mark!

Dash wants to race with friends!
Dash is waiting for the race to start.

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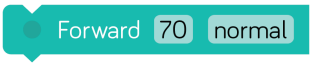
B 3.1 Events

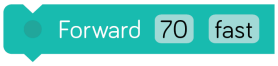
1. Have Dash **wait** until you press the **Top Button** to begin racing.

2. Now let's get this race started! Start Dash's **car engine.**

3. Now Dash can start racing! Have Dash **drive forward 70 cm.**



BONUS Make Dash go faster! How fast can Dash go?



Design your own Challenge Card. Cut and fold/glue when you are done.

Now Let's Get Creative!

Assist Dash and Cue in an epic snowball battle. See how many points Dash can earn by throwing "snowballs." Cue, on the other hand, must roll a snowball to knock down the opponent's defense.

Who will win this winter wonderland snowball battle?

MATERIALS

Dash

Blockly app

OR

Wonder app

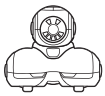
Launcher accessory (including balls or crumpled paper balls)

DIY materials such as tape, cups, cardboard, scissors, baskets, etc.

STEPS

1. Create bins to catch the snowballs. To increase the challenge, the bins can be of different heights with various mouth widths.
2. Assign points to each of the bins.
3. Use painter's tape to mark three different toss lines, from which Dash can toss the "snowballs" into the bin.
4. Program Dash to move to each spot to try to toss the "snowball" into any of the bins.
5. Consider using loops to repeat the same command multiple times.
6. Count up the earned points. Who is the master snowball tosser?

MATERIALS



Cue

Cue app

Painter's tape

Bulldozer (optional)

Toy bowling pins, empty water bottles, or stackable plastic cups

STEPS

1. Use tape to mark a starting line.
2. Set up pins or bottles in a triangular pattern or stack cups into a pyramid about 8-10 feet from the starting line.
3. Determine a scoring system related to how many pieces of the defense fall away (e.g., 10 points per piece).
4. Create a sequence of commands that will move Cue to knock down all of the pins/cups in one fell swoop.
5. Use a clap, voice command, or other event to run your program.

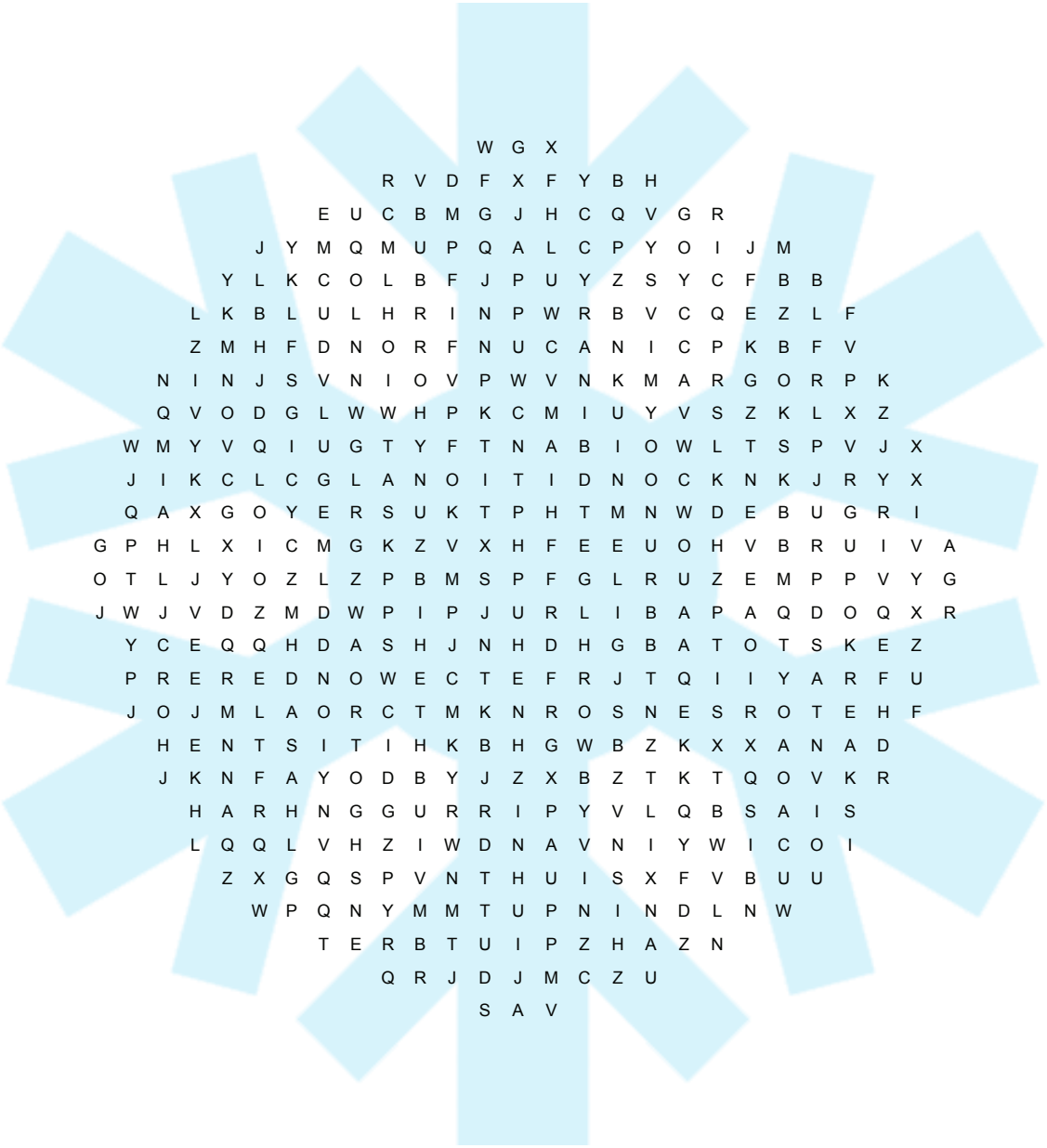
VOCABULARY

Event An action that causes something to happen.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

Time to Go Offline!

Want to unplug for a while? Try this coding word search. How many words can you find?
When you are finished, create a word search of your own on page 5.

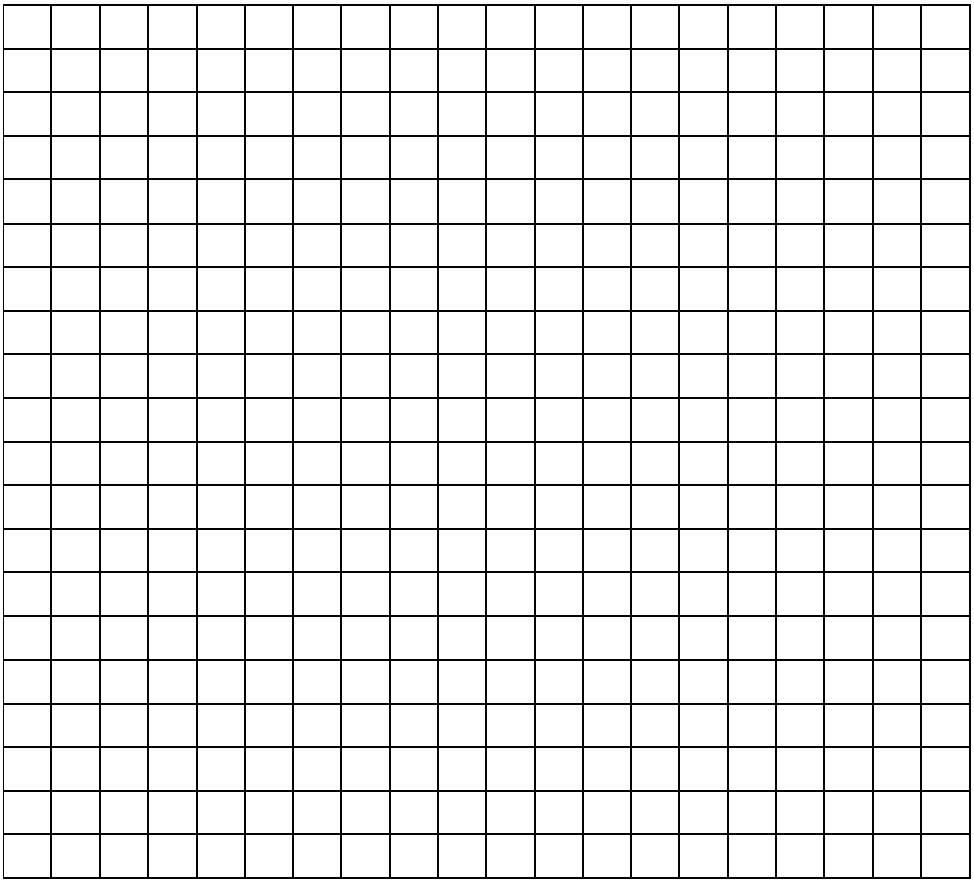


DASH	PROGRAM	CONDITIONAL	BLOCKLY	EVENT	ITERATION
DOT	CODE	LOOP	WONDER	SENSOR	RUN
CUE	DEBUG	BINARY	FUNCTION	INPUT	VARIABLE

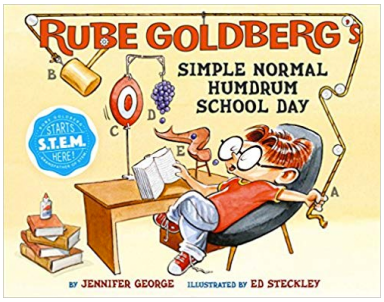
Create Your Own Word Search

Use this Code.org glossary (https://code.org/curriculum/docs/k-5/glossary) to help you add words to your puzzle.

1. Use this CodePlace your favorite coding words in the blank template provided.
2. Remember, you can make the words go across, down, backwards, and diagonally.
3. Fill in the remaining boxes with random letters of your choice.



Recommended Reading



Rube Goldberg's Simple Normal Humdrum School Day
by Jennifer George

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read:

FUN FACT

Introduced at the 1939 World's Fair, the first humanoid robot, Elektro, was 7 feet tall and "spoke" more than 700 words.

WINTER WONDERLAND

Up for a Challenge?

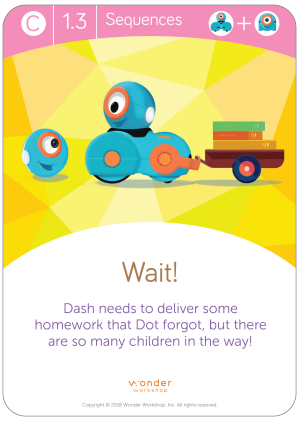
Dashing Through the Snow!

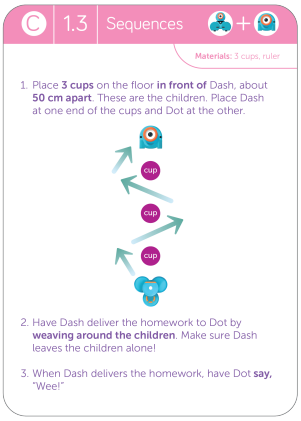
MATERIALS

Dash robot

Blockly app

Painter's tape





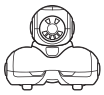
Dash Challenge Card C 1.3

STEPS

1. Use the "On Your Mark" Dash Challenge Card to create a sequence of commands for Dash.
2. User painter's tape to create a starting line and a finish line for Dash.
3. Open the Blockly app on your compatible device* and create a new program.
4. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
5. Press the green PLAY button to test your program.

What Can You Do with Cue?

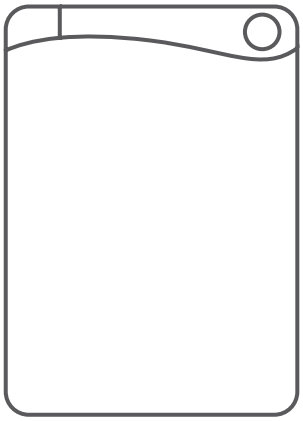
MATERIALS



Cue robot

Cue app

Painter's tape



Blank Challenge Card

STEPS

1. Take a look at the "On Your Mark" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar robot race using events for Cue. Some ideas may include using a "hear voice" command to start the race.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device*.
5. Share away!

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

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*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

C 1.3 Sequences

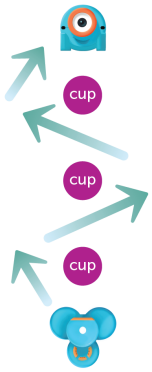
Wait!

Dash needs to deliver some homework that Dot forgot, but there are so many children in the way!

C 1.3 Sequences

Materials: 3 cups, ruler

1. Place **3 cups** on the floor **in front of** Dash, about **50 cm apart**. These are the children. Place Dash at one end of the cups and Dot at the other.



2. Have Dash deliver the homework to Dot by **weaving around the children**. Make sure Dash leaves the children alone!

3. When Dash delivers the homework, have Dot **say,** "Wee!"

Design your own Challenge Card. Cut and fold/glue when you are done.

Now Let's Get Creative!

That blizzard sure left snow everywhere, but Dash and Cue are ready to help plow the areas clear. Use your coding skills to program the robots to plow the "snow" out of the way in one fell swoop.

MATERIALS

Dash

Blockly app

OR

Wonder app

Bulldozer accessory

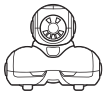
Cotton balls as snow

Painter's tape

STEPS

1. Create a 4x4 grid on the ground of 30-centimeter squares with painter's tape.
2. Label the y-axis: A, B, C, D; label the x-axis: 1, 2, 3, 4.
3. Place cotton balls in the center of 2B, 2c, 3B, and 3C.
4. Starting in 1A, program a sequence for Dash to follow in order to plow the "snow" out of each of the inner squares and into D4.
5. For an added challenge, try to plow all of the "snow" in one trip!

MATERIALS



Cue

Cue app

Cotton balls as snow

Cue's Building Bricks (optional)

DIY materials for attachemen such as Lego, craft sticks, rubber bands, cardboard tubes, etc.

STEPS

1. Create a 4x4 grid on the ground of 30-centimeter squares with painter's tape.
2. Label the y-axis: A, B, C, D; label the x-axis: 1, 2, 3, 4.
3. Place cotton balls in the center of 2B, 2c, 3B, and 3C.
4. Create an attachment to gather or plow all of the "snow."
5. Starting in 1A, program Cue to move to each of the four squares to move all of the "snow" into D4.
6. For an added challenge, try to plow all of the "snow" in one trip.

VOCABULARY

Sequence An arrangement of steps in a specific order to describe a procedure.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

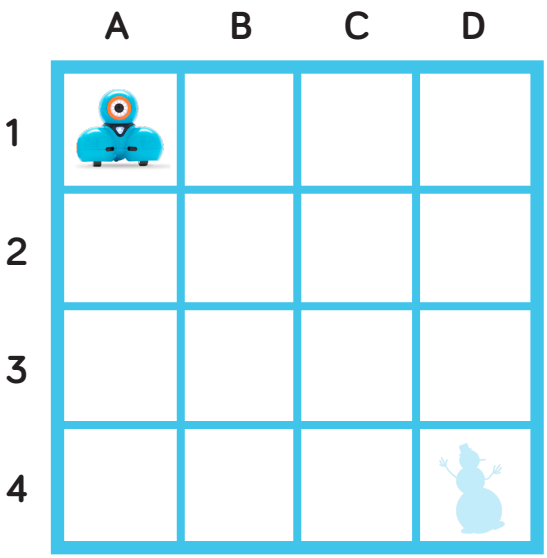
Time to Go Offline!

Want to unplug for a while? Help Dash and Cue find the snowmen!
Have some fun offline with these printable coding challenges.

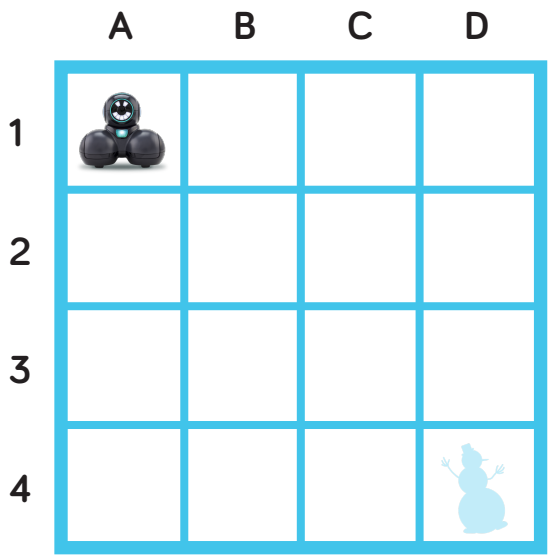
Follow the sequence of commands to move Dash across the snowfield.

If you are using Cue, work backwards to create your own sequence of commands on the blank mat, "Cueing Up Some Winter Fun."

Dashing into Winter Break!



Cueing Up Some Winter Fun!



Dashing Into Winter Break!

Help Dash cross the snow field to get to the snowman.

- Move Dash two blocks to the right. Draw a snow ball. What are the coordinates? _____
- Move Dash one block down and one block to the right. Color the block blue. _____
- Move Dash one block down and three blocks to the left. Draw an ice skate. _____
- Move Dash two blocks to the right, one block down, and one block to the right. _____
- Did you reach the snowman? Draw Dash on the snowman!

	A	B	C	D
1				
2				
3				
4				

Cueing Up Some Winter Fun!

Design a wintertime challenge for Cue. Work backwards from the snowman and write directions on the lines below for a friend to follow.

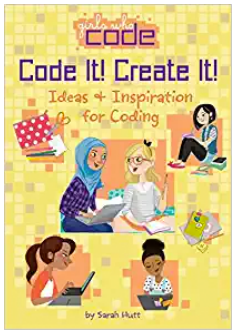
_____

_____

_____

	A	B	C	D
1				
2				
3				
4				

Recommended Reading



Code It! Create It!: Ideas & Inspiration for Coding (Girls Who Code)
by Sarah Hutt

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read:

FUN FACT

In 1956, George Devol and Joseph Engelberger founded the first robot company, which was named Unimation.

Activities Packet #4

WINTER WONDERLAND

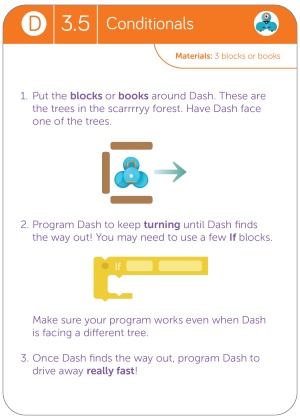
Up for a Challenge?

Dashing Through the Snow!

MATERIALS

Dash robot

Blockly app



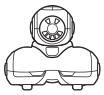
Dash Challenge Card D 3.5

STEPS

1. Use the "Follow the Leader" Dash Challenge Card to create a sequence of commands for Dash.
2. Open the Blockly app on your compatible device* and create a new program.
3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
4. Press the green PLAY button to test your program.

What Can You Do with Cue?

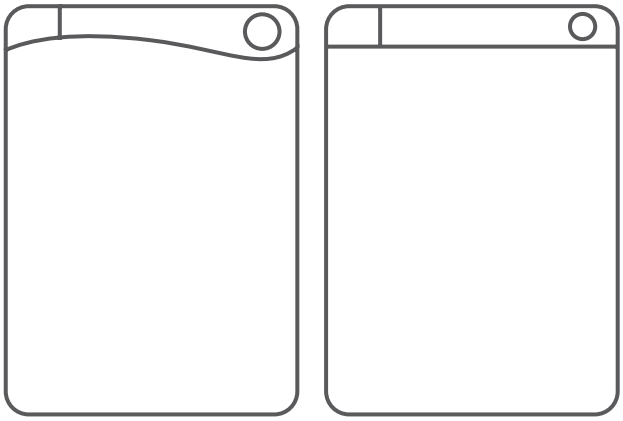
MATERIALS



Cue robot

Cue app

Painter's tape



Blank Challenge Card

STEPS

1. Take a look at the "Follow the Leader" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar robot activity using conditionals for Cue.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device*.
5. Share away!

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

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*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

D 3.5 Conditionals

Dash's Escape!

Dash ran away from the Dot monster and accidentally headed into a scarrrrrrryyy forest. Help Dash find a way out of the forest!

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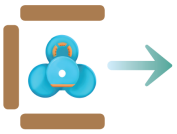
D 3.5 Conditionals

Materials: 3 blocks or books

1. Put the **blocks** or **books** around Dash. These are the trees in the scarrrryy forest. Have Dash face one of the trees.



2. Program Dash to keep **turning** until Dash finds the way out! You may need to use a few **If** blocks.

Make sure your program works even when Dash is facing a different tree.

3. Once Dash finds the way out, program Dash to drive away **really fast**!

Design your own Challenge Card. Cut and fold/glue when you are done.

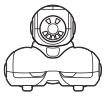
Now Let's Get Creative!

Put your creative design skills to the test by creating an ice maze, then challenge a friend or family member to solve it by navigating through it with Dash or Cue. Make sure you have a start and finish spot identified, and don't forget to test it out first to make sure that it is actually solvable.

MATERIALS


Dash

OR


Cue


Blockly app

OR


Wonder app

Painter's tape, blocks, markers with butcher paper

STEPS

1. To create a maze, begin with the finish. Create a 30-centimeter square.
2. Now center a larger 90-centimeter square around the finish square.
3. Continue centering larger squares around the last: add a 150-centimeter square, a 210-centimeter square... make your maze as large as you want.
4. Lastly, go back and remove part of each square's lines as "openings" within the maze and add perpendicular lines to block off the paths in various spots. You may want to test out the routes to make it as easy or complicated as you want.
5. Don't forget to add a starting point!

LEVEL UP!

Consider designing your maze to be in a circular shape or make it more freeform.

Could you add various finishes worth different points?

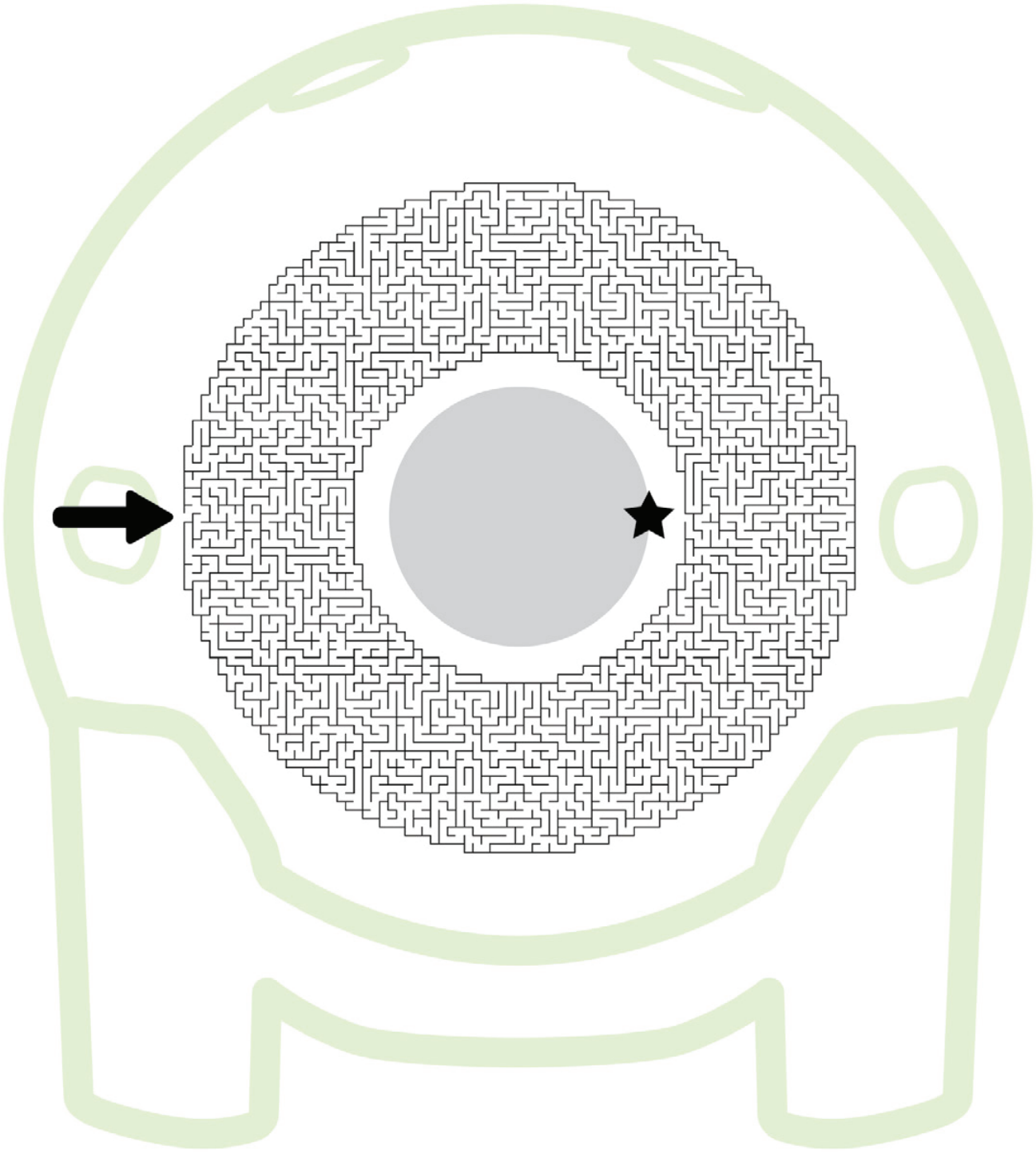
VOCABULARY

Conditional A statement that only runs under certain conditions.

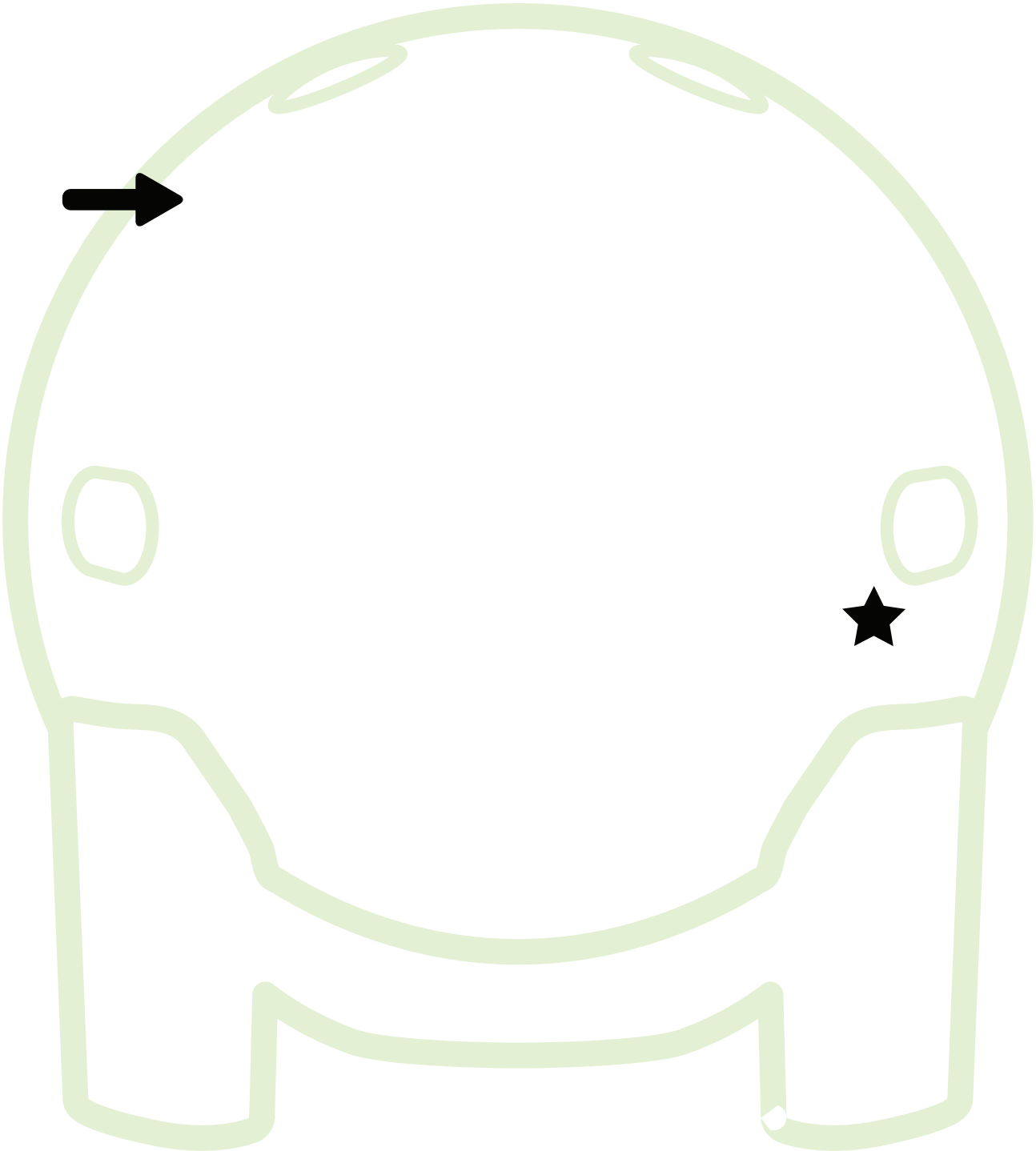
Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

Dot is a-maze-ing!

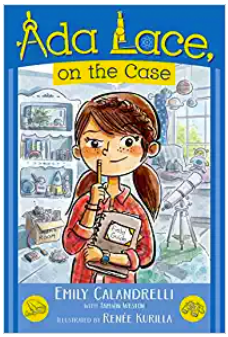
Want to unplug for a while? Dot wants in on the fun! Put your problem-solving skills to the test with this (eye)ball of a maze. Can you "see" a way to the finish? Remember to fail forward and don't give up!
When you are done, try creating your own maze on page 5. How difficult will you make it?
Will you begin from the start or work backwards from the finish?



Design Your Own Maze!



Recommended Reading



Ada Lace, on the Case (An Ada Lace Adventure)
by Emily Calandrelli

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read:

FUN FACT

The Ford Motor Company was the first to use robots in their production line, back in 1961.

WINTER WONDERLAND

Up for a Challenge?

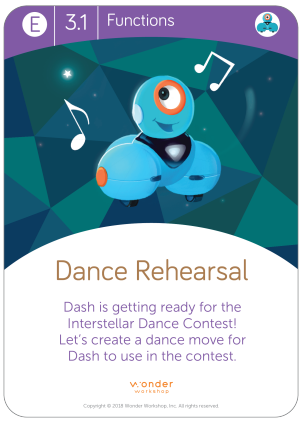
Dashing Through the Snow!

MATERIALS

Dash robot

Blockly app

Background Music



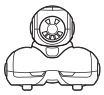
Dash Challenge Card E 3.1

STEPS

1. Use the "Dance Rehearsal" Dash Challenge Card to create a sequence of commands for Dash.
2. Open the Blockly app on your compatible device* and create a new program.
3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
4. Be creative when choreographing Dash's dance moves. Don't be afraid to use trial and error until it looks just right.
5. Press the green PLAY button to test your program.

What Can You Do with Cue?

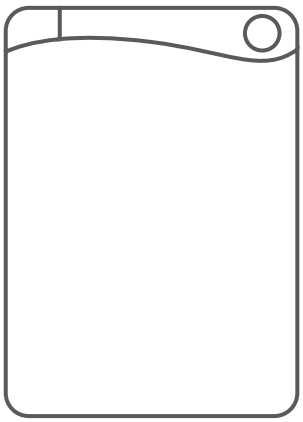
MATERIALS

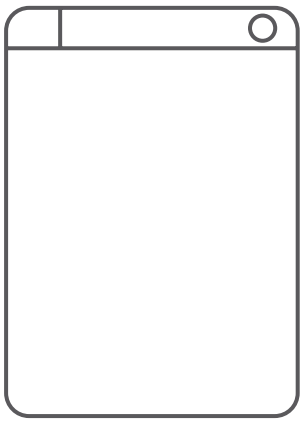


Cue robot

Cue app

Background Music





Blank Challenge Card

STEPS

1. Take a look at the "Dance Rehearsal" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar robot dance using functions for Cue.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device*.
5. Share away!

Record a video of Dash or Cue running your program successfully.

Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

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*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

E 3.1 Functions

Dance Rehearsal

Dash is getting ready for the Interstellar Dance Contest! Let's create a dance move for Dash to use in the contest.

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E 3.1 Functions

1. Use a **Function** block to make Dash's new dance.

2. What do you want Dash's dance to look like? You can add blocks like these **inside the Function** block.

3. Under the **When Start** block, program Dash to do the dance **at least 2 times**.

Add **lights and sounds** to Dash's dance as well.

BONUS Use more **functions** to create new dance moves for Dash!

Design your own Challenge Card. Cut and fold/glue when you are done.

Now Let's Get Creative!

Use your coding skills to create a winter pageant for Dash or Cue! Dress up Dash or Cue in their winter finest and program a runway walk. Use craft materials or LEGOs to outfit your robot in elaborate costumes. Then use the Path, Blockly, Wonder, or Cue app to program Dash or Cue to move down the runway or across a stage. Be sure to add a little style and attitude to your robot's walk. And don't forget the runway music!

MATERIALS


Dash

+


Path app

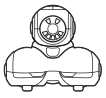
OR


Blockly app

OR


Wonder app

OR


Cue

+


Cue app

(Dot robot optional)

Crafting materials: fabric scraps, construction/scrapbook paper, pipe cleaners, pom poms, stickers, etc.

Scissors, (double-sided) tape and/or stapler

Building Brick Connectors and LEGOs

Painter's tape or cardboard/wooden blocks to outline the runway

STEPS

1. Create a "runway stage" with painter's tape or blocks.
2. Create costumes for Dash or Cue using a variety of craft materials.
3. Program your Dash using Path, Blockly, Wonder, or program Cue using the Cue app to show off their costume with a creative runway walk.
4. Make sure to add lots of turns, and maybe even a little dance animation or two. Want more flair? Add some lights and sound! Show off your robot's personality.
5. Use a clap, voice command, or other event to run your program.

LEVEL UP!

Create a uniquely shaped runway, maybe in the shape of a "T", a "U", or a "+" sign. Use blocks or small cardboard boxes to "fence in" the runway. Use the "IF" programming blocks (you may need more than one) to program your robot to sense the runway's end and then keep turning until it has a clear runway path again.

VOCABULARY

Function A sequence of instructions, usually given a name, that can be reused throughout a program or in other programs.

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

Time to Go Offline!

Want to unplug for a while? Build your own robot!
Let's build a robot out of recyclable materials you can find around the house.

Keep an eye out for:

- Paper towel or toilet paper rolls
- Aluminum or tin cans (no sharp edges)
- Plastic and paper cups
- Empty cereal boxes
- Plastic food containers
- Bottle and their caps, etc.

Use page 5 to design and plan your robot.
Then, use glue or tape to engineer your materials into a robot masterpiece!!

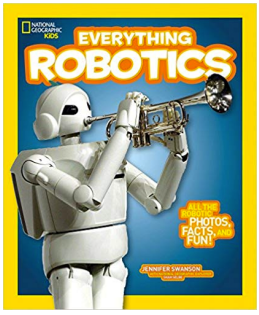
When you are finished building, write a story here about your robot and its winter wonderland adventures.

Design Your Own Robot!

MATERIALS List the recyclable materials you found around your house here:

DESIGN PLAN Sketch a design for your robot using the materials you have found:

Recommended Reading



National Geographic Kids Everything Robotics
by Jennifer Swanson

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read:

FUN FACT

Two robots, Spirit and Opportunity, landed on Mars in 2004 to assist NASA with space exploration. Opportunity is still transmitting data to this day!.

WINTER WONDERLAND

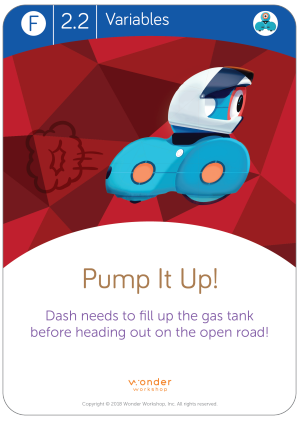
Up for a Challenge?

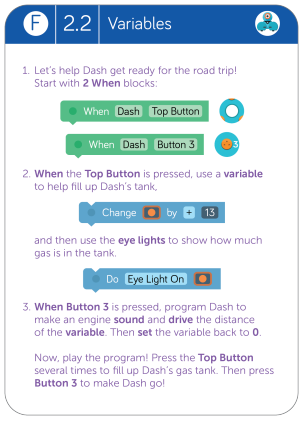
Dashing Through the Snow!

MATERIALS

Dash robot

Blockly app





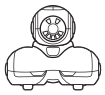
Dash Challenge Card F 2.2

STEPS

1. Use the "Road Trip" Dash Challenge Card to create a sequence of commands for Dash.
2. Open the Blockly app on your compatible device* and create a new program.
3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.
4. Be creative and add your own animations or sounds/voice recordings along the way.
5. Press the green PLAY button to test your program.

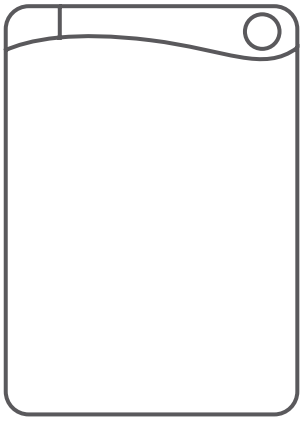
What Can You Do with Cue?

MATERIALS



Cue robot

Cue app



Blank Challenge Card

STEPS

1. Take a look at the "Road Trip" Dash Challenge Card.
2. Create your own Challenge Card outlining a similar robot road trip using variables for Cue.
3. On the front side, add an image with a title and problem statement. On the back, outline your challenge in simple steps!
4. Open the Cue app on your compatible device*.
5. Share away!

Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

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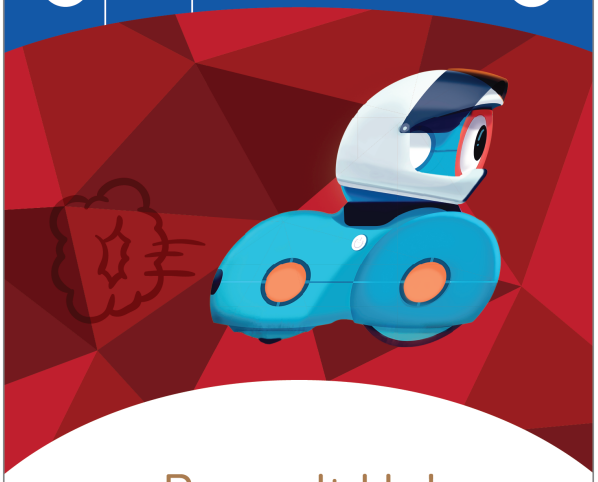
*www.makewonder.com/compatibility

Cut out the Dash Challenge Card and fold in half or glue back to back.

F 2.2 Variables



Pump It Up!

Dash needs to fill up the gas tank before heading out on the open road!

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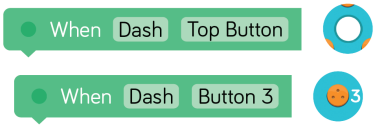
F 2.2 Variables

1. Let's help Dash get ready for the road trip! Start with **2 When** blocks:



2. **When** the **Top Button** is pressed, use a **variable** to help fill up Dash's tank,

and then use the **eye lights** to show how much gas is in the tank.

3. **When Button 3** is pressed, program Dash to make an engine **sound** and **drive** the distance of the **variable**. Then **set** the variable back to **0**.

Now, play the program! Press the **Top Button** several times to fill up Dash's gas tank. Then press **Button 3** to make Dash go!

Design your own Challenge Card. Cut and fold/glue when you are done.

Now Let's Get Creative!

Use your coding skills and Sketch Kit to create a winterscape showing a winter themed scene.
What would Dash and Cue see? Perhaps there would be a snowman, a mitten, or a snowflake falling from a cloud.

MATERIALS


Dash

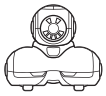
+


Blockly app

OR


Wonder app

OR


Cue

+


Cue app

Sketch Kit

Sketch Kit Whiteboard Mat or large piece of butcher paper

Device to take photos or videos

STEPS

1. Brainstorm different images that represent winter to you.
2. Attach the Sketch Kit to Dash or Cue (https://www.makewonder.com/play/setup/#sketch_kit).
3. Snap in a dry erase marker.
4. Program your robot to draw your winterscape.

LEVEL UP!

Record your robot sketching out the winterscape step by step.
Use a simple video editing or slideshow app such as iMovie or Animoto to put your photos or videos together and add some festive music.

VOCABULARY

Variable A placeholder for a piece of information that can change.

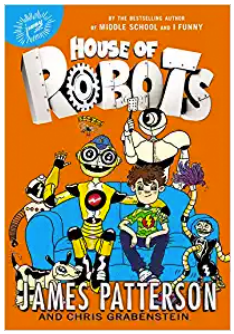
Record a video of Dash or Cue running your program successfully.
Share your video on Twitter @WonderWorkshop with the hashtag #FunWithWonder.

Time to Go Offline!

Create a comic strip of Dash, Dot, and Cue in the real world. Give them a real-world problem to tackle. How would they solve it together?
Use drawings, speech bubbles, and descriptive copy to bring your comic strip to life.

Create six scenes that show a beginning, middle, and end to your story. Consider storyboarding your ideas here and then using a digital animation tool to add some multimedia dimension to your comic.

Recommended Reading



House of Robots
by James Patterson

Take a look at our recommended book.

Have it heard about it before?

Do check out our other recommended picture and chapters books that have to do with coding and robotics at:
www.makewonder.com/blog/stem-recommended-reading-list

How many books on the list have you read?

Color in our robot's eye to show how many books you've read:

FUN FACT

Today, there are more than a million robots used in industries across the world - and almost half are used in Japan!