

# Wonder

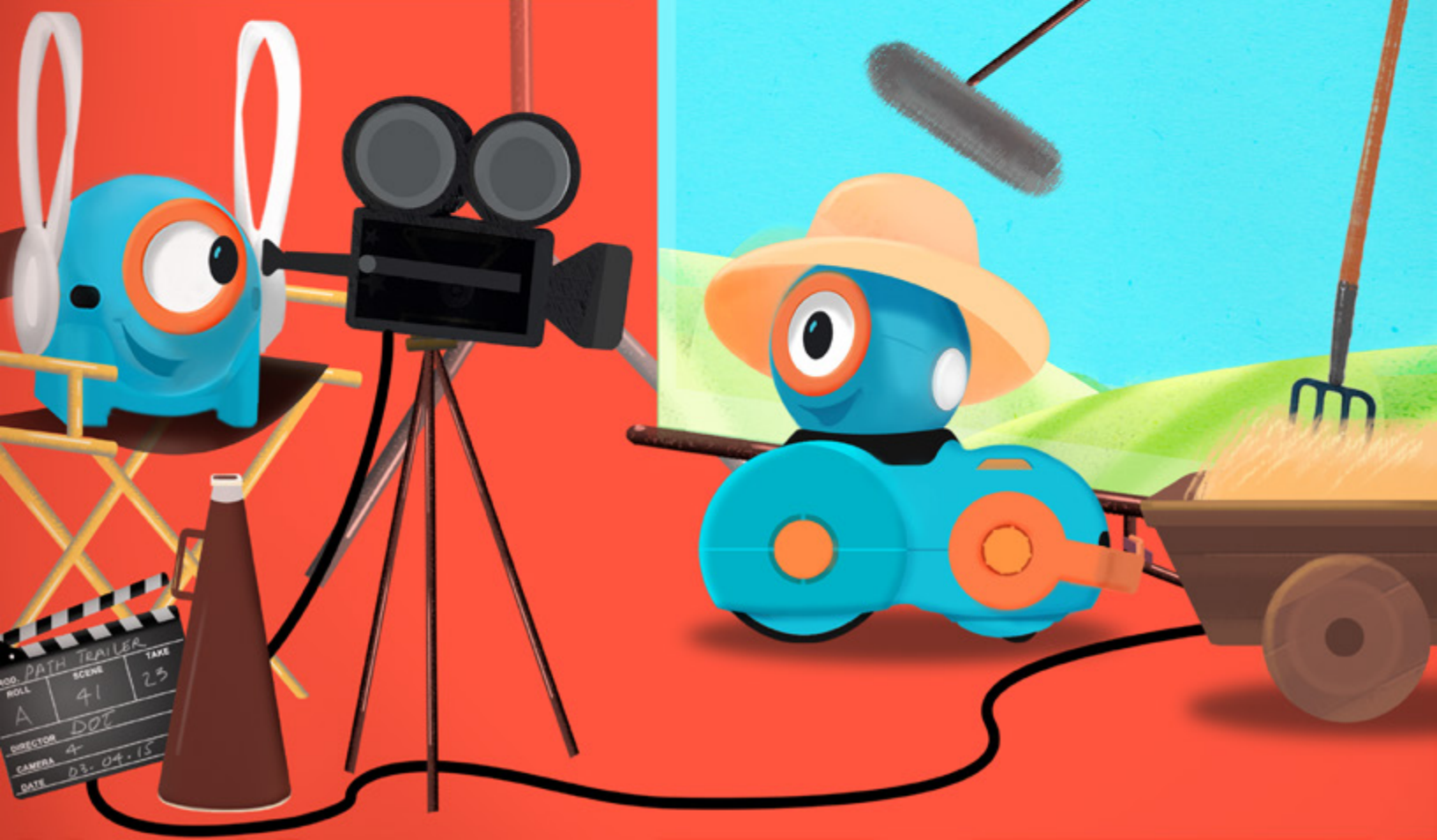
## Magazine

The next part of Dash & Dot's adventures.

Be the next robot filmmaker!

Around the world on a treasure hunt with Dash.

Play a game of Blockly Mad Libs!



# Flex your creativity muscles!

From the buds of life sprouting out from the ground to the Grammy Awards to the Oscars, we were inspired by creativity this month. Our family loves playing dress up, building characters, and telling stories. This issue of Wonder Magazine has everything you need to make some movie magic and bring your imagination to life with Dash & Dot!

You can create a puppet show or film your own movie with Dash & Dot! Be sure to plan out the parts of your story first and then recruit your other stuffed animals, toys, and building blocks to help out. We'll share some tips on how to tell an interesting story. Then it's your turn write a program that brings your story to life!

We love the interesting ways teachers are using Dash & Dot in the classroom. Terri, a teacher from San Antonio, TX, used Dash to teach geography and storytelling together. Dash searches around the world for the elusive Shoe of Honesty, getting into trouble and going on adventures along the way. We were inspired by her class to make our version of the story into a game of [Blockly Mad Libs](#)!

It's wonderful to see how coding is becoming way to express yourself! What will your creation be? Try your hand at making some movie magic, a story, a dance, or even a drawing with Dash & Dot, and share it with us! [Submit it here](#), or email [ideas@makewonder.com](mailto:ideas@makewonder.com).



Talk to you soon!

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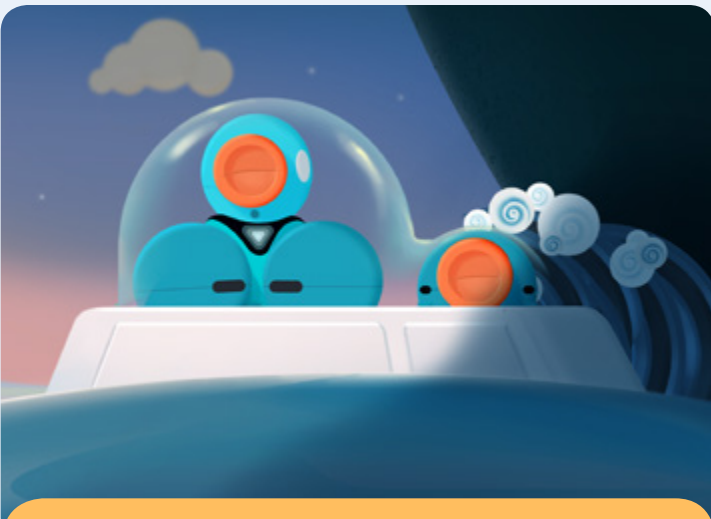
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# Adventures of

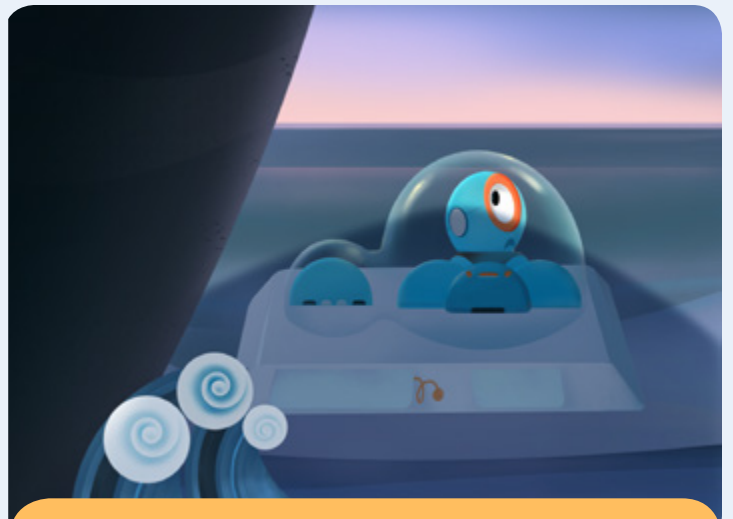
# Dash & Dot



The gold and pink clouds of the setting sun soon turned into the misty dark of night. Powering to sleep mode, Dash & Dot drifted along under the light of the lonely moon.

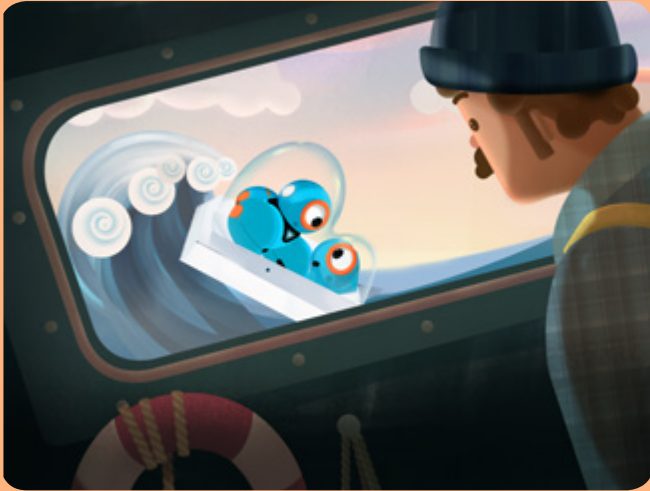


Morning came, and with it the warmth of the sun peeked over the horizon. Growing louder, the rushing sound of water stirred Dash from a dreamy digital sleep.



Next to a still snoring Dot, Dash turned and became fearful as a giant dark shadow quickly moved to over take the robots and their tiny raft.





Pushing the raft to its side, the black hull of a fishing ship lumbered along while Dash & Dot tossed precariously on the waves of its enormous wake.



By all the creatures in the sea, the good captain of the fishing ship never expected to find robots like Dash & Dot, so he brought them safely aboard

Having listened curiously to their tale, the captain agreed to help these surprising, little robots. The ship's course was set. Dash & Dot were again on their way..

To be continued...





# Make Your Own Puppet Show

Create your own puppet show with Dot at the helm as the puppetmaster. Think about how you will build your character and what kind of challenges your character might face. A great story has a beginning, middle, and end. Have a friend with another Dash & Dot set? Create a puppet show together with multiple robots!

## What you'll Need:



- Dash
- Dot
- Building Brick Connectors
- LEGO® bricks or other props to make your character like fabric, hats, pipe cleaners



# Set up

- 1 Write out the plot of your story.** You can create a storyboard that will take you through what happens in your puppet show. Think about how you will introduce your characters, how you will present a conflict, and how your character will resolve it! Use the sounds in Blockly as inspiration for plot elements to add.



- 2 Create the setting for your story.** Are you on a farm? Find farm animals around your room that will live on your farm, and build your characters a farm house!

- 3 Dress up Dash.** Use fabric, construction paper, or outfits you have for other toys to transform Dash into your character. In this case, one Dash is a farmer's wife, and the other Dash is the farmer!

- 4 Everyone in their places!** Place everyone where they belong on the set. In this case, we have an extra Dot that we will hide in a tree close to the farm house.

- 5 Program your story.** What happens first, second, and last? You can make a project that follows your plotline or improvise with Dot, the puppet master! Check out the play options for sample code.

# Play Options



**Blockly:** Plan out what Dash is going to do in each scene. Make Dash react, and introduce the plot points when Dot gives the signal!

When **Dot shakes**, the tornado comes! Then when **Dot looks up**, the cat calls out from the tree as Dash looks for it. When **Dot looks down**, Dash finds the cat and transports it down with a helicopter. And finally, when Dot **leans left**, Dash does a celebratory dance with the cat. The end!

The image shows a screenshot of the Blockly interface for programming Dash. The left sidebar contains a menu with categories: Start, Drive, Look, Light, Sound, and Control. Below the menu is a Dash robot icon and a toggle switch. The main workspace displays two scripts. The first script is triggered by 'When Top Button' and includes blocks for 'Say Hi', 'Look up', and 'Look down'. The second script is triggered by 'When Dot Shake' and includes blocks for 'Say Uh oh!', 'Set Wheel Speed' (Left: forward, really fast; Right: backward, really fast), 'Transport Fire Siren', a 'Repeat 3 times' loop containing two 'All Colors' blocks (one yellow, one red), and a 'Repeat until Dot Button 1' loop. Inside the second loop, there is an 'If Dot Look Up' condition leading to 'Animal Cat', 'Look up', 'Turn to Voice', and 'Say Huh?'. Below the loop, there is a 'Forward 10 normal' block, an 'If Dot Look Down' condition leading to 'Transport Helicopter', 'Look down', and 'Say Wee!'.





**Path** : Use Path to plot out the story by drawing a path for Dash to take and adding nodes for each of the plot points!

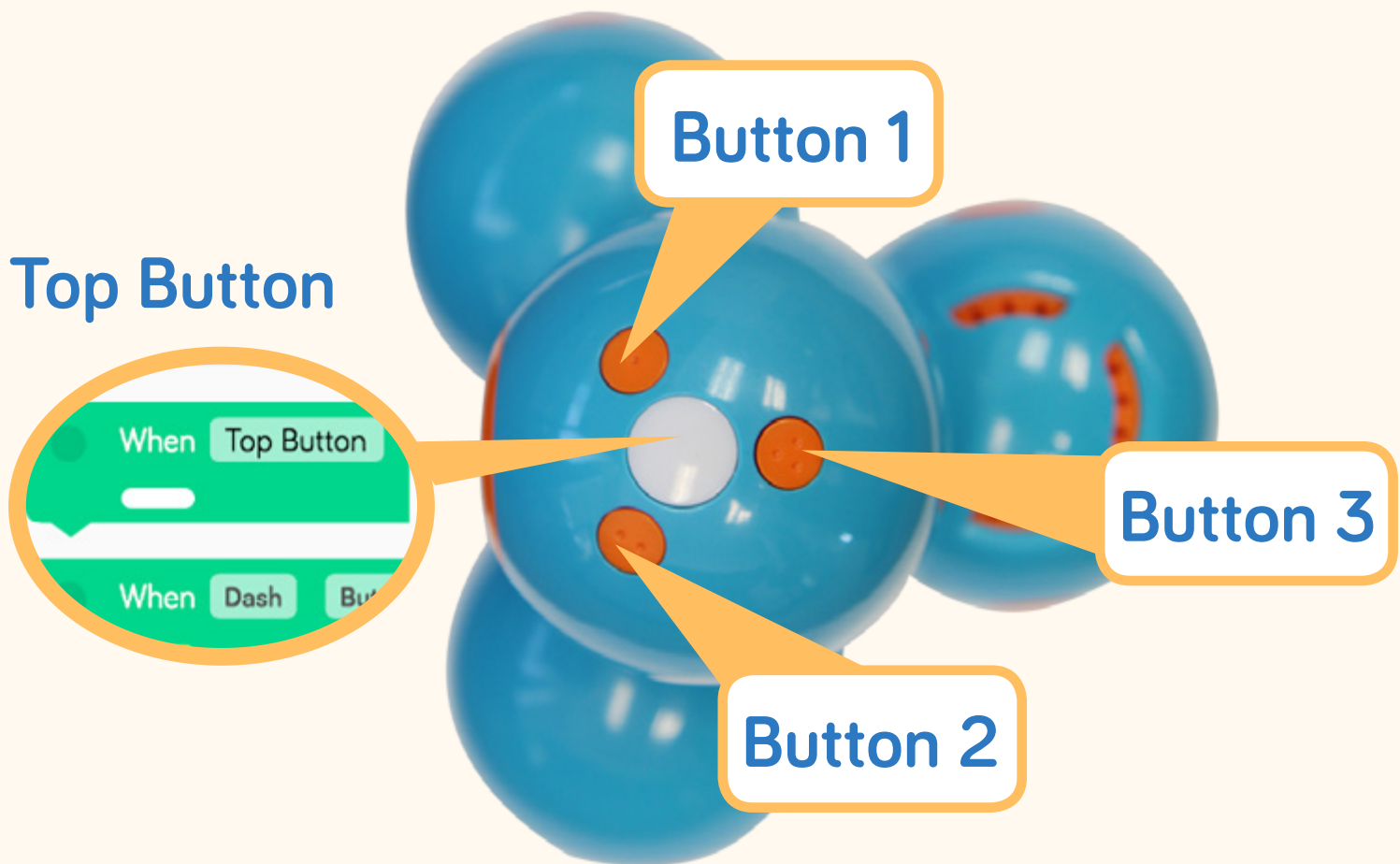


### What will your puppet show be about?

We'd love to see it! Take a video and [submit it here](#), and you might see your creation in a future edition of Wonder Magazine! ✨

# Robot Guts

Dash & Dot are small but mighty robots! They both have many intricate parts that allow interactions with the environment and with one another! In this edition of Robot Guts, we're going to talk about Dash & Dot's **sensors** and how you can use Blockly to program robot actions and reactions!



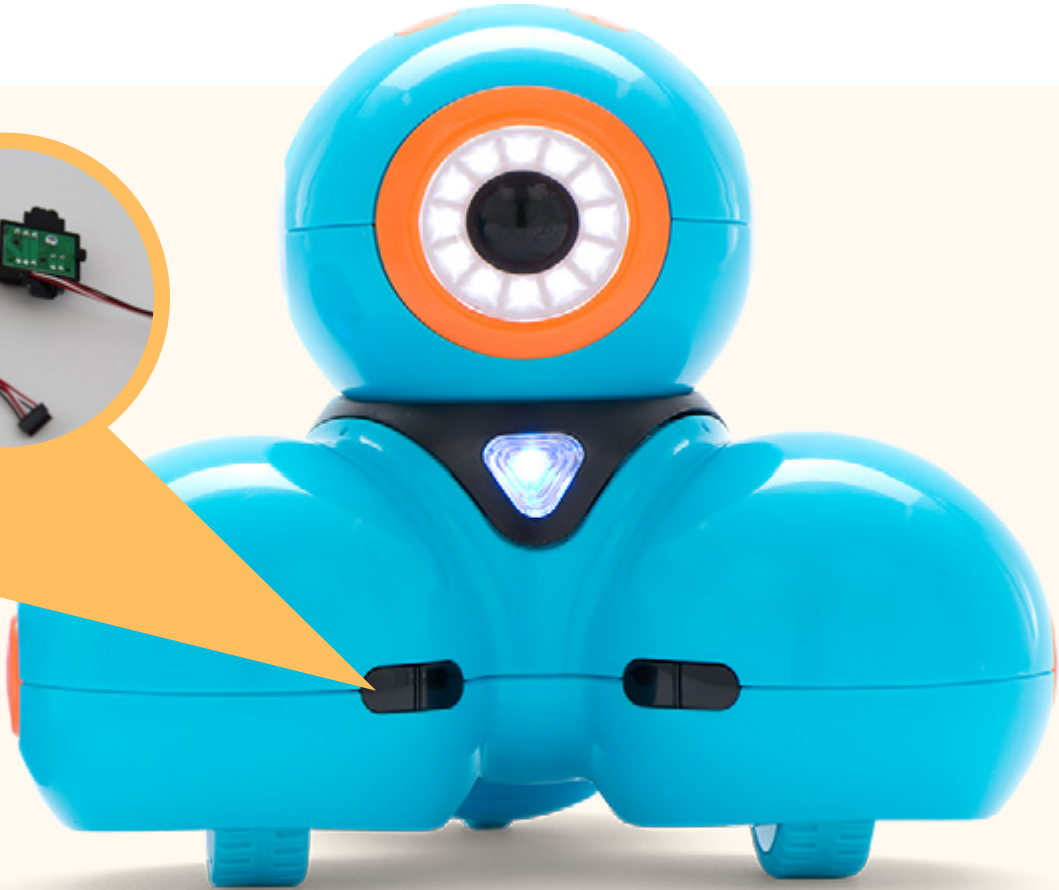
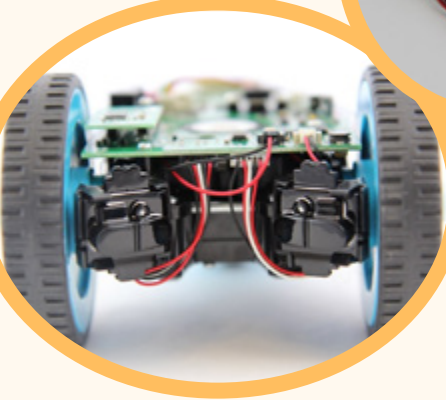
Dash & Dot each have four round buttons on the top of their heads that can be used to trigger the execution of programs in Blockly. In the Start menu, simply drag out the “**When Top Button**” block, and build your program by stacking blocks underneath it. Once you’re ready to run your program, activate it by pressing Dash or Dot’s Top Button!

Once you have mastered using the When blocks in the **Start** menu, try using any or all of the buttons as events to trigger robot behaviors! To do so, check out the blocks in the **Control** menu and start experimenting!

# Distance Sensors

Dash has three distance sensors. These sensors allow Dash to know where objects are, and how far away they are! Dash can detect objects that are approximately 12 inches in front or behind. You can use Blockly to program Dash to react to an **obstacle in front**, or an **object behind**! These reactions can be programmed by using the Start or Control blocks, similar to the Buttons.

Front Distance  
Sensor x 2



Back Distance  
Sensor



How will you use distance sensors to program Dash to react to objects in the way in Blockly?

What part of the robot guts would you like to see in the next issue of Wonder Magazine? Let us know by emailing [ideas@makewonder.com](mailto:ideas@makewonder.com)! 📧



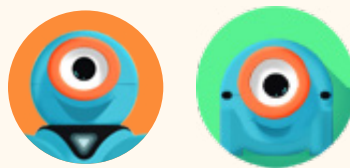


# Robot Filmmaker

Make some movie magic from a robot's point of view! Think about a story you might be able to tell with Dash's help behind the camera lens.

Think about what your film will be about and who will star in it. You can make a documentary, action movie, or comedy!

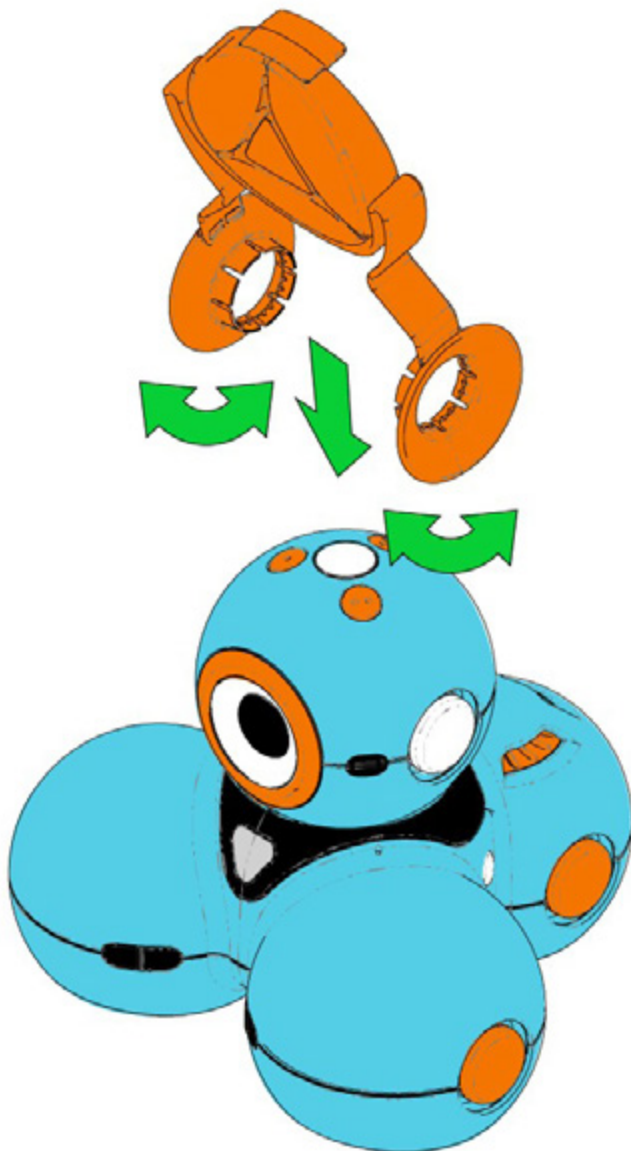
## What you'll Need:



- Dash
- Dot
- Smartphone Mount
- Smartphone

# Set up

- 1 Plan out the story** you going to tell. A great story arc typically includes the following scenes.
- 2 Setting:** This is where you introduce the characters in your story and where it takes place. For example, Dash can follow your pet or sibling around and document “a day in the life.”
- 3 Conflict and Challenge:** These scenes introduce a problem for your characters to solve. A challenge is presented that complicates things.
- 4 Climax:** This is the turning point of your story, where the problem starts showing signs of becoming solved.
- 5 Resolution:** In this final scene, the problem is solved. How will your story end?
- 6 Prepare your set.** If you are shooting your movie in your bedroom, what props do you need for your setting? If you are telling a story that takes place in the woods, how will you recreate this scene?
- 7** Carefully snap the **smartphone mount** to Dash’s head as shown in [these instructions](#). If you don’t have a smartphone mount, try using LEGO extensions to add on a GoPro!
- 8 Program** the route Dash will take to film your masterpiece.
- 9 Run your program** and film your movie!



# Play Options



**Go:** Use the Go app to navigate Dash from scene to scene. Use the remote control to turn Dash's head to the right angle.



**Blockly:** Create your own camera bot. Make Dash **turn to voice** so Dash is facing the people or pets that are talking. You can also play director by having Dash go to the right place and film at the right angle as you move Dot around!

The screenshot displays the Blockly programming environment for the Dash robot. On the left, a sidebar lists various function categories: Start, Drive, Look, Light, Sound, and Control. The main workspace is divided into two script areas. The first script, 'When Top Button', is a yellow 'Repeat until' loop with 'Dot' and 'Button 1' as conditions. It contains four 'If' blocks: 'If Dot Look Up' followed by 'Forward 20 normal', 'If Dot Look Down' followed by 'Backward 20 normal', 'If Dot Lean Left' followed by 'Turn Left 45', and 'If Dot Lean Right' followed by 'Turn Right 45'. The second script, 'When Dash Hear Voice', is a yellow 'Repeat until' loop with 'Dot' and 'Top Button' as conditions. It contains three 'If' blocks: 'If Dot Look Up' followed by 'Look up', 'If Dot Look Down' followed by 'Look down', and 'If Dot Shake' followed by 'Look straight'. A red plus icon is visible in the top right corner of the workspace.





## Dash with GoPro


**Brennan** (age 7) from Drexel Hill, PA mounted a GoPro on Dash to take a video of his brother!

Watch the video to see how Brennan attached the GoPro and made his video.

*"I wanted to figure out a way to connect a GoPro to Dash. I tried several different configurations. Finally I was able to find a workable solution. With the camera mounted I can get a realtime video feed from Dash on a phone while I navigate using Go on an iPad. It's kind of fun to go dashing around with the camera on."*



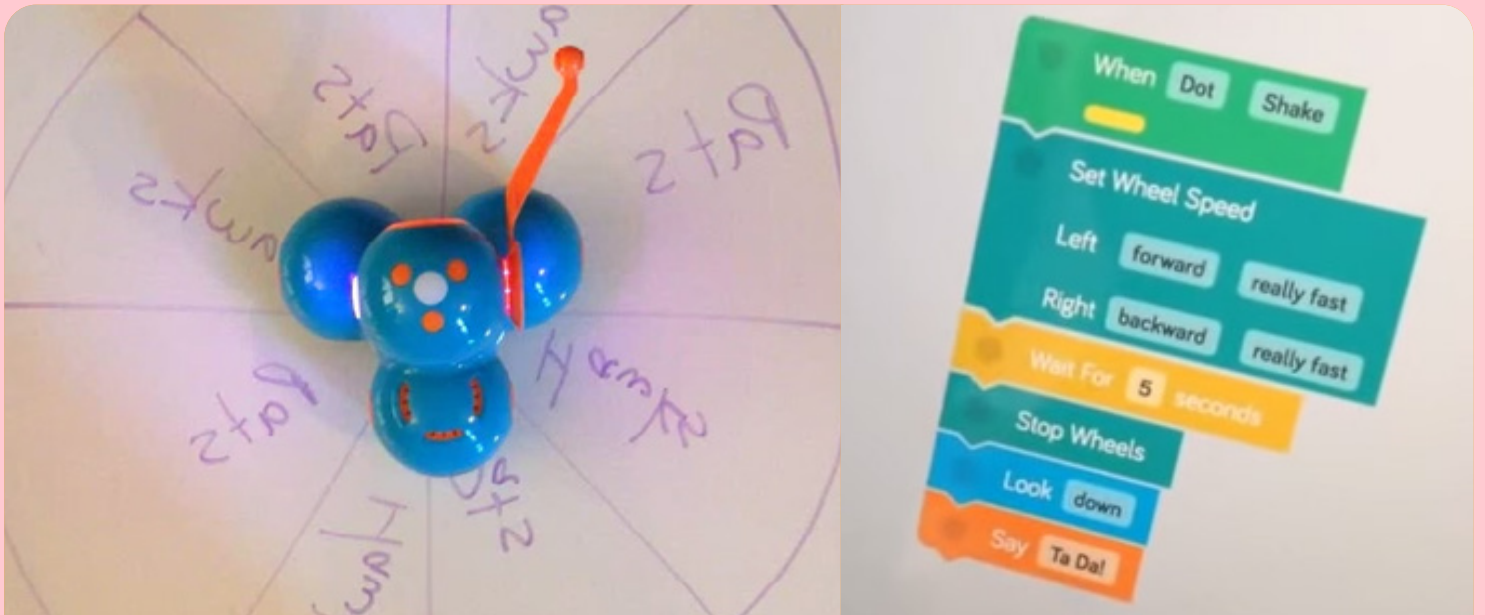
Video: Dash goes on a LEGO City Tour

We would love to see your movie! Post them on YouTube with #makewonder, and then send us a note at [ideas@makewonder.com](mailto:ideas@makewonder.com)! 

# Wonder(ful) Projects

In each issue of Wonder Magazine, we show off great projects from the community! Check out how kids around the world are playing with Dash & Dot. This month we are flexing our creativity muscles, so make a story, play, musical masterpiece, dance, or drawing and share your results!

**Do you want to be featured in the next Wonder Magazine?** [Submit your project here.](#)



## Big Game Winner Predictor

**John** from New York and The Wired Homeschool had a little fun before the Superbowl with his kids! Dash made a prediction of the winner of the big game. [Check out the video](#) to see it in action and how they programmed it. What else would you like Dash to predict?

## Guard Dash

**Joeythebold** (age 12) from Portola Valley, CA was inspired by another community member to create a shooter!

*"I got the idea from the Terminator Dash and tried to improve it by using less pieces and shoot 2 darts. I did the same thing by attaching the dart shooters to the side and trigger pieces to the head."*

[Watch the video](#) to see it in action!



## Kuazie (Dash) the Construction Bot

**Aiden** (age 9) from Providence, RI built Dash into a construction bot! With new and improved LEGO® extensions, Dash is ready to get down to business.

*"I used LEGO® Brick connectors and built off them to make a construction hat, a bulldozer attachment, and a bit more."*



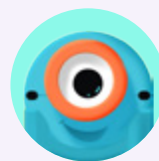


# Special Effects by Dot



Program Dot to be a one-robot light and sound show! Or use Dot behind the scenes to add some special effects to Dash's performance. Use these effects to help bring a story or puppet show to life, or simply add some unexpected fun to a friend or family member's day!

## What you'll Need:



- Dot
- Any other props you need to make your move. Perhaps you will use your stuffed animals to set the scene.

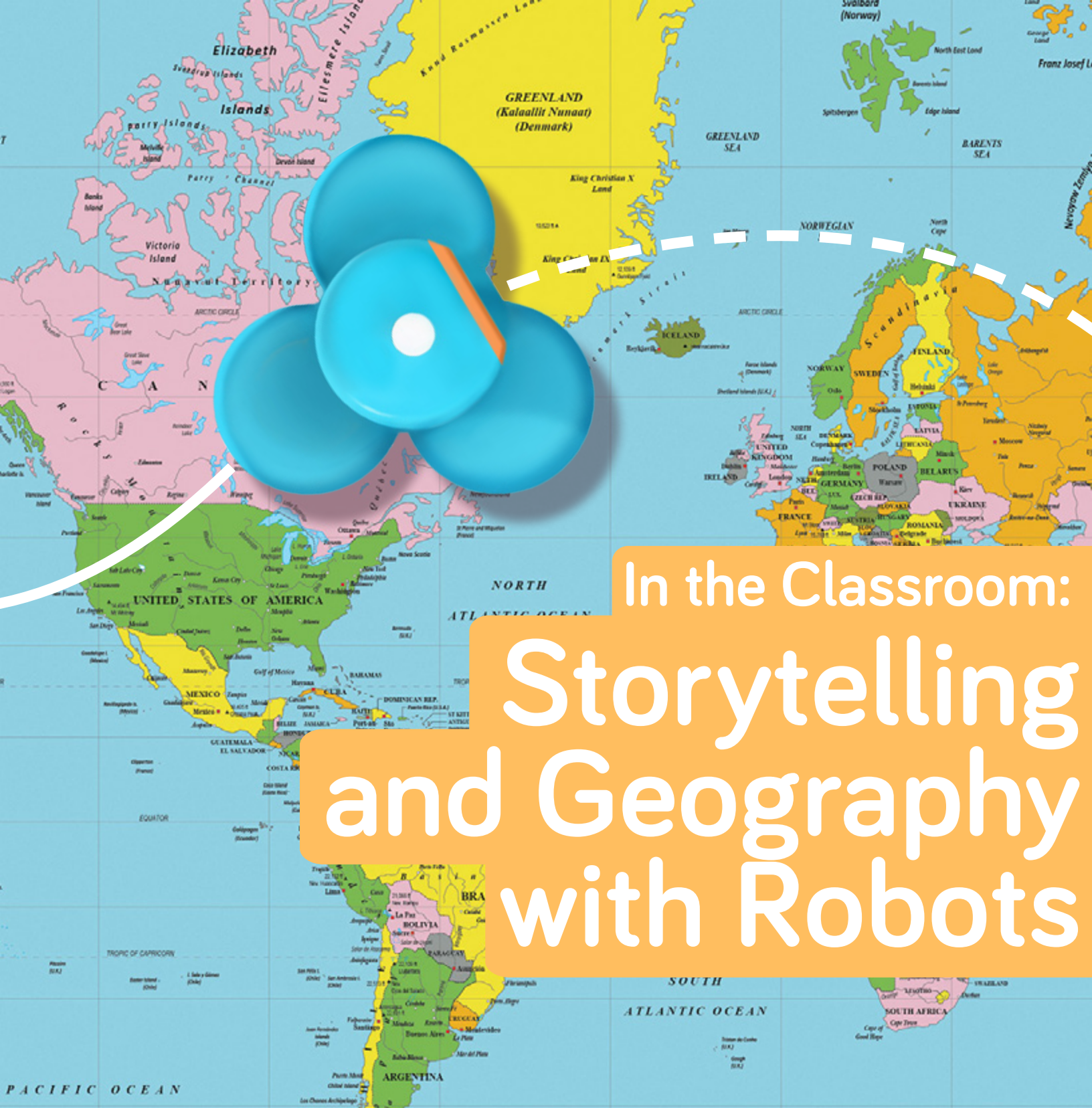
# Set up

- 1 Plan out the types of **colors and sounds** you'd like Dot to play. Dot can make a dramatic farm animal scene come to life with animal sounds!
- 2 Launch the Blockly app, and make sure your Dot robot is connected. Use the menus to mix and match **gestures and events** to create the perfect program!
- 3 Start your program with a When block from the Start menu. Which **event** would you like to kick your program off with? Maybe it's a toss, shake, or button press!
- 4 Use the **Control blocks** to assign different sound and color effects to gestures and events. What would you like to happen when Dot looks up, down, or leans to the left or right?

## Play Options

The screenshot shows the Blockly app interface with a sidebar on the left containing menu items: Start, Drive, Look, Light, Sound, and Control. Below the menu is a small Dot robot icon and a green toggle switch. The main workspace displays two programs. The first program on the left starts with a 'When Top Button' block, followed by a 'Repeat until Dot Button 1' loop. Inside the loop are five 'If' blocks: 'If Dot Look Up' (Animal Horse), 'If Dot Look Down' (Animal Cat), 'If Dot Lean Left' (Animal Dog), 'If Dot Lean Right' (Animal Elephant), and 'If Dot Shake' (Say Uh oh!). The second program on the right starts with a 'When Dot Toss' block, followed by a 'Repeat until Dot Top Button' loop. Inside the loop are a 'Say Wee!' block, an 'Eye Pattern Alternate Start at 1' block, and a series of 'All Colors' blocks with different color swatches: red, orange, yellow, green, blue, and purple.





# In the Classroom: Storytelling and Geography with Robots



**Terri**, a teacher in San Antonio, TX, has been teaching gifted students in K-5 for 14 years. She loves tools that make learning more customized to each student and bring concepts to life!



**“The synergizing and problem-solving were phenomenal. They took their task of guiding Dash very seriously. They learned about angles and programming logic. And, in the meantime, they learned their continents and compass directions.”**

Terri and her 12-year-old daughter wrote a story for her first graders full of mystery, adventures, and programming challenges. The students drive Dash on a floor map of the world to the places in the story and then acted out the plot points.

Dash's adventure starts in South America and takes Dash on a trans-continental bounty hunt for the famed Shoe of Honesty. When Dash gets to the final destination, Dash opens the locker, and something is wrong! [Read the story here!](#)



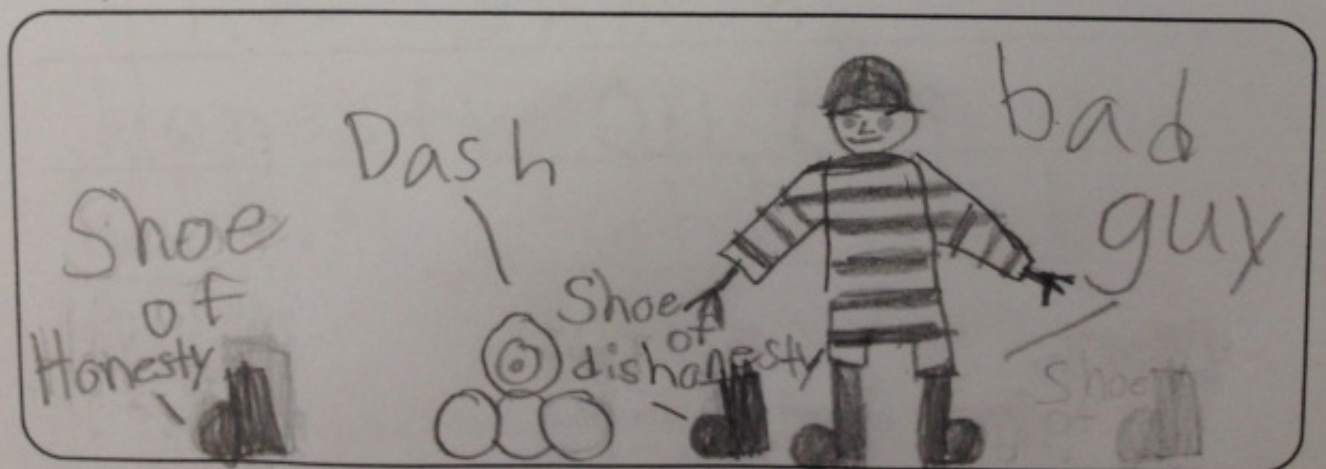
In the end, the students were asked to write out their own conclusions. What do you think happened after Dash found the Shoe of Honesty?

Check out Terri's [blog](#) and [Twitter](#) account of her adventures in creating fun activities for Dash & Dot for her classroom. Are you a teacher using Dash & Dot in your classroom? Email us at [teachers@makewonder.com](mailto:teachers@makewonder.com) to join our teacher community and say hello!

# The Bad Guy

The rest of the story by George E

When Dash opens the locker in London he sees a bad guy! So he tells him to stop, but the bad guy says that he is not doing something bad. So he put the Shoe of Honesty on



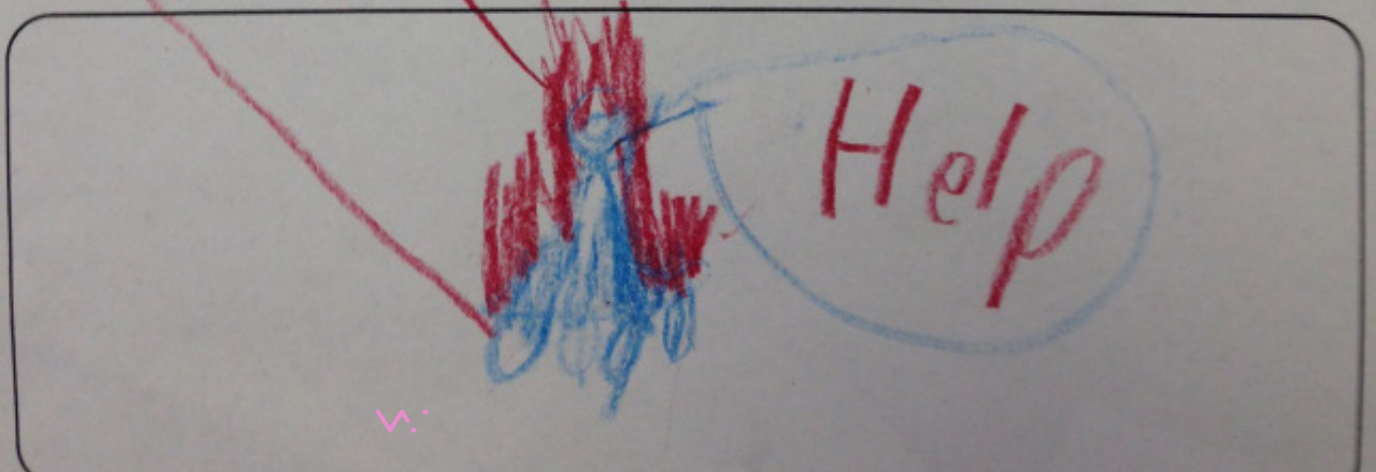


# The Surprising Flames

The rest of the story by James

When he opens the locker  
he will find the shoe of Honest  
burning up. Aaa! He's burning up  
by fire. He sprays the lava and in  
self and wears the shoe of  
Honesty. It seems too big.

Dash fire





# The Funny Corner

We were inspired by Terri's class and created a Mad Libs version of what happens after Dash opens the locker!

1

Grab a friend, sibling, or parent. It is time to play a game of **Blockly Mad Libs**! Create the following program in Blockly and then ask the other person to choose from the drop-downs. Anything goes, and the more random their choices, the funnier the story!



At the locker in London, Dash comes face to face with the mysterious

\_\_\_\_\_. Dash hears \_\_\_\_\_  
 (sound: Animal) (sound: Animal) (sound: Weird)

and a faint \_\_\_\_\_ glow coming from its stomach. This strange animal has  
 (all colors)

eaten the Shoe of Honesty! After being trapped in the locker for so long, the creature let  
 out a surprised \_\_\_\_\_ and then jumped onto the ground. It landed with a  
 (sound: Say)

thud and went in the direction of \_\_\_\_\_ and spit out glittery  
 (set wheel speed - left [ ] [ ], right [ ] [ ])

\_\_\_\_\_ everywhere. "Seize that beast!" the guards at the train  
 (sound: Weird)

station yelled. Dash and the guards were in hot pursuit of the creature with the  
 help of a \_\_\_\_\_. When under attack, these creatures  
 (sound: Transport)

go \_\_\_\_\_ while making the sound of a \_\_\_\_\_.  
 (Forward [ ] [ ]) (sound: Animal)

Finally, Dash caught up to the creature and convinced it to talk by offering some water  
 and \_\_\_\_\_, the creature's favorite food. Because the creature swallowed  
 (sound: Animal)

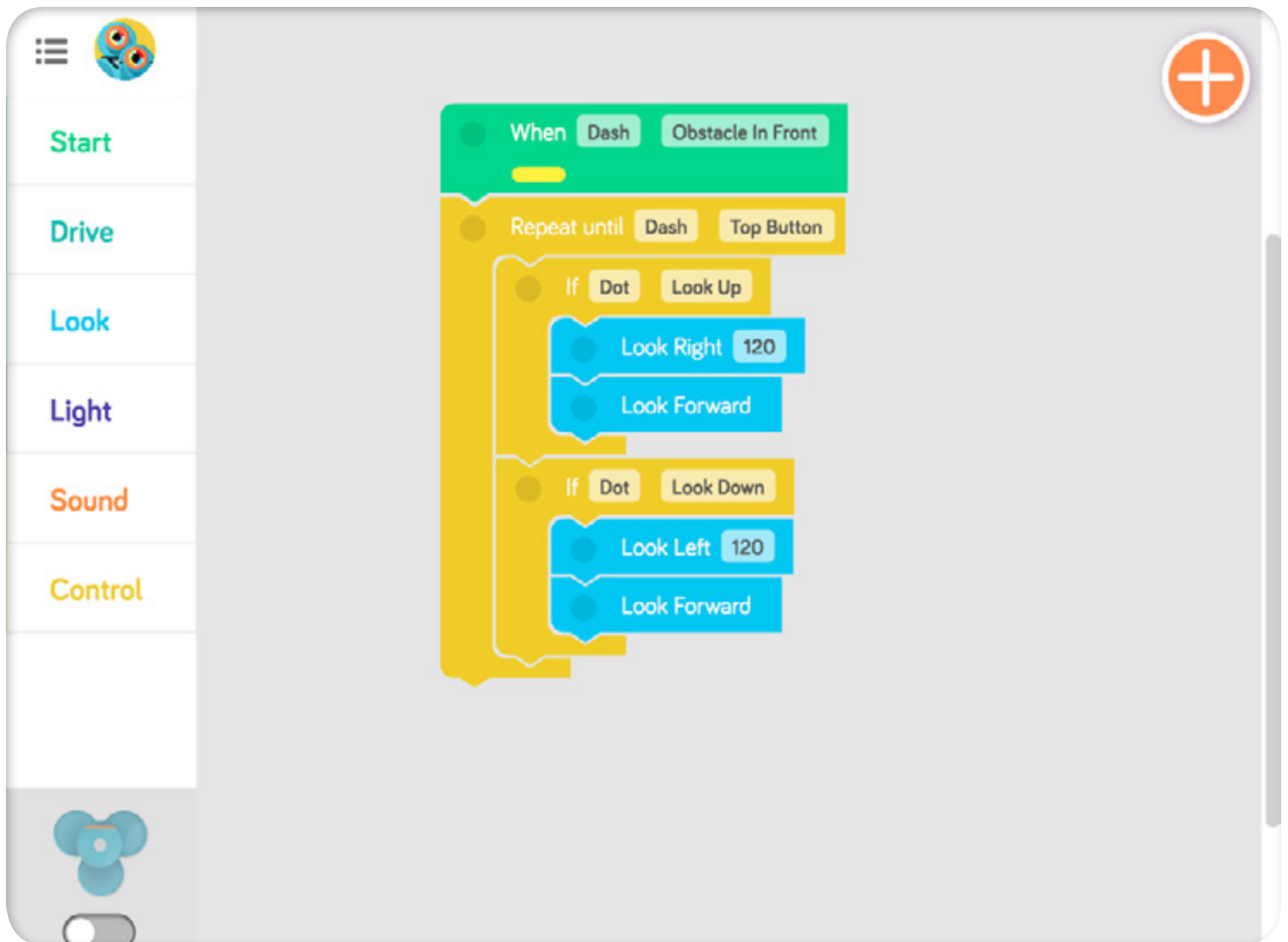
the Shoe of Honesty, it became the new Shoe of Honesty! It bonds with the last person  
 who feeds it and tells that person's truth. Now if you ask it a question, it turns its head right  
 for "yes" and left for "no."

3

**Try your hand** at feeding the creature and having it tell the truth! Make a Blockly program that starts when you put your **hand in front**.

Then if you make **Dot look up**, make Dash's head **look left** for no. If you make **Dot look down**, make Dash's head **look right** for yes. Repeat the game until the top button is pressed!

Then, grab a friend and have them ask you questions. Use Dot gestures to give them yes or no answers. Remember, you have to tell the truth! Use the following program or make up your own rules!



**Want to submit your own jokes or share your story?** [Email us at ideas@makewonder.com!](mailto:ideas@makewonder.com)





# Thanks to:

**Alicia Chang** - Project Ideas and Robot Guts

**Dag Haile** - Cover, Adventures, Graphics

**June Lin** - Layout, Funny Corner, Editor

## And from our community...

**Terri Eichholz** from San Antonio, TX - In the Classroom

**Joachim and Thomas** from Belgium - Star Wars Delivery Bot

**Joeythebold** from Portola Valley, CA - Guard Dash

**Aiden** - Construction Bot

**John** from New York - Big Game Predictor

**Brennan** from Drexel Hill, PA - Dash with GoPro

We could not have done it without you. To contribute to the next *Wonder Magazine*, send your project images and videos, jokes, and questions to [ideas@makewonder.com](mailto:ideas@makewonder.com). Be sure to include what you want to be called, your age, and your location!



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