2016 ROBOTICS COMPETITION
CHALLENGE DOCUMENT

Ages 6-8

Animal Habitat Rescue

Age Bracket 6 - 8

The **Wonder League** has 5 very important missions that only you and your fearless team of friends can help with. Animals on faraway **Bear Byte Island** called our emergency line, and Dash is the perfect little robot to save the day. Your team will write code to help navigate Dash around the island and rescue animal habitats. Your missions await!

All animal habitat rescuers must submit your missions back to Wonder League Headquarters at clubs. makewonder.com by **December 15, 2016. 11:59pm PST**. You must take a video of your robot completing each mission and also submit your Wonder Key.

The first step is to make a **150cm** by **240cm** grid. Each grid line is **30cm** apart. You can use painter's tape to tape down the grid (you can put tape on a tarp or vinyl fabric for better portability) or purchase one at our **store**.

- Label the rows from the bottom to top with **A** through **E**
- Label the columns from the left to right using **1** through **8**.

Mission 1: **Animal Mimicry**

Dash needs to explore the island to find out where animals are without disturbing them! Help Dash visit four places to record and play back the unique sounds of an exotic species.

What you need

- Dash
- Your tablet

Dash's starting place: 🤖 C1

E							
D							
C	🤖						
B							
A							

1　2　**3**　4　**5**　6　**7**　8

Animal Mimicry
Your mission

Make Dash move to rows 3, 5, and 7. At each row, make Dash

1. Turn on a Red light
2. Wait 1 second
3. Turn on a Green light
4. Play an animal sound

In your submission video, take a video of Dash running your code once.

SCORE

15 points max

5 points for turning on the red light, green light, animal sound at **row 3**

5 points for turning on the red light, green light, animal sound at **row 5**

5 points for turning on the red light, green light, animal sound at **row 7**

JUST 4 fun

Dress Dash up as an animal to complete Dash's disguise.

Research sounds that animals make, and record custom sounds for Dash to play.

RULES

- Most of Dash's body has to be in the target cell when the sound is played.
- Don't make Dash go outside the grid!

Mission 2: **Tower of Trash**

An epic tower of burning trash is threatening the favorite birthing spot of the blue-bellied beach bowl, an endangered species of sea turtle. Help Dash shove the burning trash mountain off the beach before the baby turtles are born.

What you need

- Dash
- Your tablet
- Dot
- 2 Solo cups - 18 oz size

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- Put 1 cup upside down at D3 and put Dot on top. Dot is the pregnant sea turtle!
- Put 1 cup upside down at D4. This cup is the burning garbage.

Dash's starting place: **C1**

Tower of Trash
Your mission

Make Dash find the garbage cup and push it into Row E.

RULES

- You can't disturb the pregnant sea turtle! Don't knock Dot off the cup or move Dot's cup out of the cell.

In your submission video, take a video of Dash running your code once.

SCORE

20 points max

20 points for pushing the cup completely into **Row E**

10 points for only pushing the cup partially into **Row E**

JUST 4 fun

Dress Dot up as a turtle.

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Mission 3: **Rabbit Rescue**

Dash's next stop is to the forest to save a rare species of rabbit called the one-eyed round-bodied bluebunny, who is being threatened by a rapidly growing invasive species of pythons that have a special taste for bunny meat. Help Dash create a conservation area so that the bunnies can frolic without fear!

What you need

- Dash
- Your tablet
- Dot
- 1 Solo cup - 18 oz size

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Put 1 cup upside down at B3 and put Dot on top. Dot is the bunny.

Dash's starting place: 🍥 **C1**

```
E
D
C  ✿
B        ◎
A
   1  2  3  4  5  6  7  8
```

Rabbit Rescue
Your mission

Make Dash orbit around Dot's cup at least 3 times.

RULES
- You can't disturb the bunny! Don't knock Dot off the cup or move Dot's cup out of the cell.
- Don't make Dash go outside the grid!

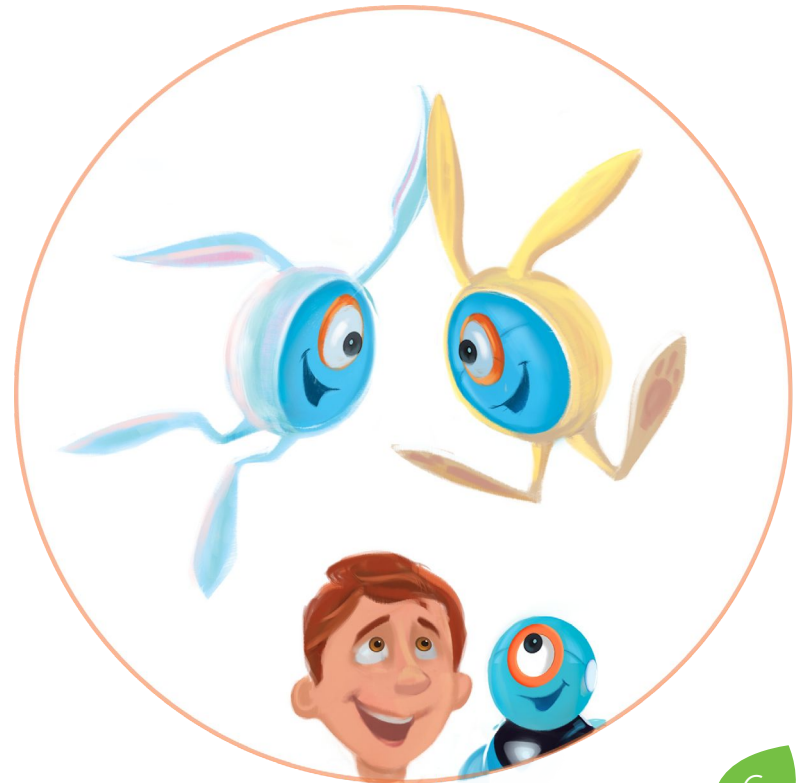▶ **In your submission video,** take a video of Dash running your code once.

SCORE

30 points max

10 points for each full orbit around Dot **(max 3 orbits)**

JUST 4 fun

Dress Dot up as a bunny.

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Mission 4: **Polar Bear Problems**

Dash's next stop is an arctic coastal tundra. The ice is melting, and a mama polar bear is stuck on a piece of ice that's drifting out to sea as she was out hunting for food. Help Dash reunite the polar bear with her baby by pushing the iceberg back to land.
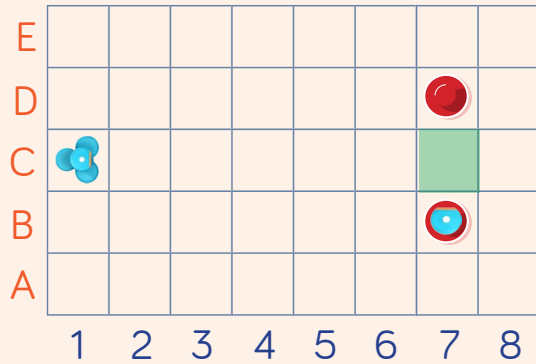
What you need

- Dash
- Your tablet
- Dot
- 2 Solo cups – 18 oz size

- Put 1 cup upside down at B7 and put Dot on top. Dot is the bear cub.
- Put 1 cup upside down at D7. This cup is the momma bear.

Dash's starting place: C1

	1	2	3	4	5	6	7	8
E								
D								
C								
B								
A								

Polar Bear Problems
Your mission

Make Dash find the momma bear and push her to C7 - next to her bear cub!

RULES
- Don't disturb the bear cub! Don't knock Dot off the cup or move Dot's cup out of the cell.
- Don't make Dash go outside the grid!

In your submission video, take a video of Dash running your code once.

SCORE

25 points max

25 points for pushing the cup completely into **C7**

10 points for only pushing the cup partially into **C7**

JUST 4 fun

Dress Dot up as a polar bear cub.

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Mission 5: **Trial By Fire**

A raging fire is spreading across the Bamboo Forest, home of the giant panda! A baby panda is has climbed a tree to hide from the flames. Help Dash put out the fires and save the baby panda!

What you need

- Dash
- Dot
- 3 Solo cups – 18 oz size
- Your tablet
- 2 ping pong balls (or Launcher balls)
- Materials to build an attachment for Dash to knock the balls off the cups
  (suggestion: you can use Building Brick Connectors and Lego bricks for this)
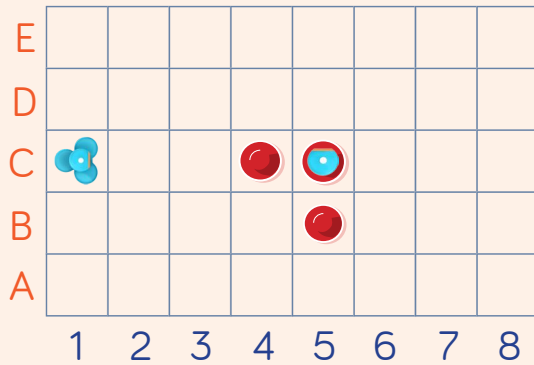
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- Put 3 cups upside down at B5 and C4, and C5.
- Put Dot on top of the cup at C5. Dot is the baby panda bear.
- Place the ping pong balls on top of the other two cups. These cups represent the burning trees.

BUILD

- Make Dash an attachment that can knock a ball off an upside down cup.

Dash's starting place: **C1**

	1	2	3	4	5	6	7	8
E								
D								
C				●	◉			
B					●			
A								

Trial by Fire

Your mission

Make Dash find the cups with balls and knock the balls off to put out the fires.

RULES
- Don't knock the baby panda out of the tree! Don't knock Dot off the cup or move Dot's cup out of the cell.
- Don't spread the fire! Don't move the other cups out of their cells
- You can't move Dash with your hands at any time.
- Don't make Dash go outside the grid!

In your submission video, take a video of Dash running your code once.

SCORE

50 points max

25 points for knocking the ball off the cup at **B5**

25 points for knocking the ball off the cup at **C4**

JUST 4 fun

Dress Dot up as a baby panda.

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