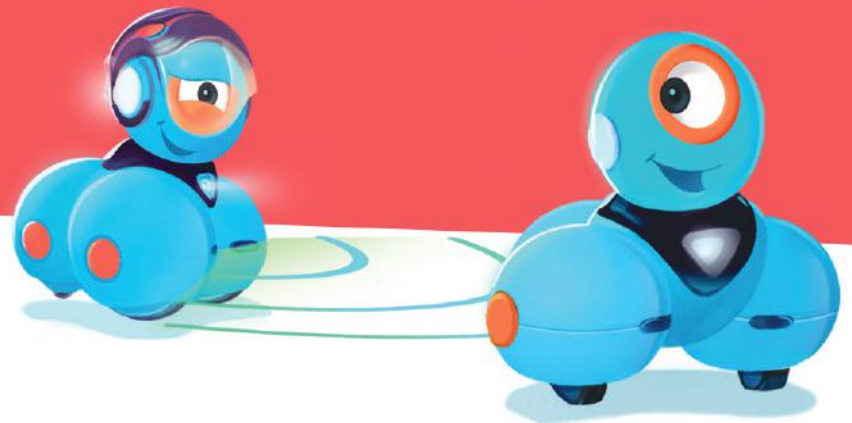# wonder
workshop

Follow the Leader Challenge
Activity Guide

Follow the Leader Challenge

Program Dash to play Follow the Leader using the front and back sensors!

w. wonder workshop

Club Leader Notes

Objectives

Kids will:

- Learn fun new ways to use Dash's distance sensors.
- Learn ways to add conditional statements using Wonder.
- Learn about directionality.

Materials & Prep

Required

- Dash
- An obstacle (can be anything the size of Dot or larger)

Optional

- Dot
- Another Dash

Concepts Covered

- Sequences
- Conditional Statements
- Cues and Behaviors

  Obstacle Seen

  Move

  Stop

  Spin To

Time Required

30 minutes

Warm Up

- Practice using the **Obstacle Seen** cue. Kids can use their hands or an obstacle Dot's size or larger to trigger the cue.
- Experiment with the distance sensors to get an understanding of the different zones they can detect.
- Show these videos to any Wonder beginners:

  ▶ All About Cues

  ▶ Creating & Deleting States

  ▶ The Obstacle Seen Cue

Follow the Leader Challenge

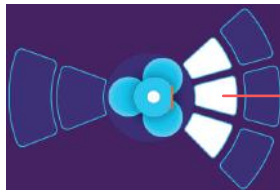Program Dash to play Follow the Leader using the front and back sensors!

Club Leader Notes

Level 1

Make Dash follow Dot when Dot is in front.

- Download the starter program with this key: **bm4a**

- Dash will stop when an **Obstacle is Not Seen.**

Zone directly in front of Dash.

- Run the program, and use your hand or another object to test it by putting it directly in front of Dash.

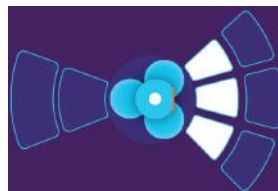- Dash should follow the obstacle if it's not too far away.

Level 2

Make Dash follow Dot if Dot is not in close range and stop when Dot is in close range. Make sure Dash can see Dot.

- Change the program so that Dash moves forward if Dot is at a bit of a distance but stops if Dot is close.
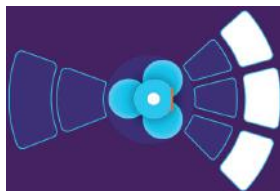
Dash moves forward if Dot is at a bit of a distance

...but stops if Dot is close

- **Example solution:** **esep**

Level 3

Make Dash follow Dot if Dot is not in close range and stop when Dot is in close range. Make sure Dash can see Dot when Dot is in front, behind, and to the left and right.

- In addition to the abilities in the previous levels, make Dash turn around when Dot is behind.

- Add to the program so that when Dash detects Dot to the front-left, Dash turns left 45 degrees, and when Dash detects Dot front-right, Dash turns right 45 degrees.

- When testing the program, try not to confused Dash's sensors with other objects (like hands). Keep Dash's field of vision clear enough to focus on the target (Dot).

- For a more advanced challenge, program one Dash to follow another Dash around the room. This will require some clever coding on both robots.
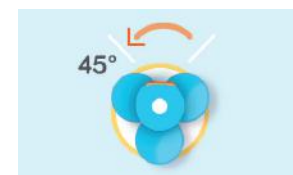
If Dash detects Dot to his left, Dash turns left 45 degrees.

If Dash detects Dot to his right, Dash turns right 45 degrees.

- **Example solution:** **s86p**

Tips

- If you don't have Dot, you can use any object that is Dot's size or larger. You can also use another Dash.

- Try transferring the program onto Dash, which will allow you to run it without the app.

Notes:

Follow the Leader Challenge

Program Dash to play
Follow the Leader using the
front and back sensors!

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Activity Sheet

Level 1

Make Dash follow Dot when Dot is in front.

☐ Download the starter program with this key: **bm4a**

☐ Run the program, and use your hand or another object to test it by putting it directly in front of Dash.

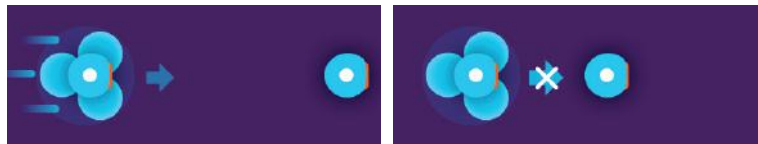☐ Dash should follow the obstacle if it's not too far away.

Try these behaviors and cues:

Level 2

Make Dash follow Dot if Dot is not in close range and stop when Dot is in close range. Make sure Dash can see Dot.

☐ Change the program so that Dash moves forward if Dot is at a bit of a distance but stops if Dot is close.

Dash moves forward if Dot is far   ...but stops if Dot is close.
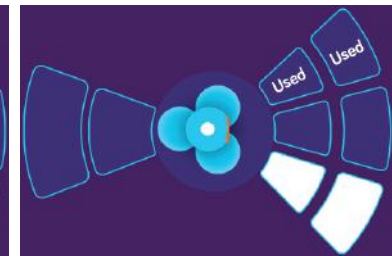
Try these behaviors and cues:

Level 3

Make Dash follow Dot if Dot is not in close range and stop when Dot is in close range. Make sure Dash can see Dot when Dot is in front, behind, and to the left and right.

☐ Program Dash to follow Dot and stop when Dot is close in front.

☐ Program Dash to turn around when Dot is behind.

☐ Add to the program so that when Dash sees Dot in front and to the left (show diagram), Dash turns to face Dot, and when Dash sees Dot in front and to the right, Dash turns to face Dot.

☐ For a more advanced challenge, program one Dash to follow another Dash around the room. This will require some clever coding on both robots.
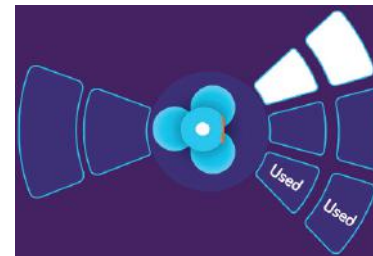
If Dash detects Dot to his left, Dash turns left 45 degrees.

If Dash detects Dot to his right, Dash turns right 45 degrees.

Try these behaviors and cues: