

REINBOT LANDING PRACTICE (Educator's Guide)

Information: Duration: 45 min **Grades:** K-9 **Experience:** All levels **Group Size:** 2-4 Students

Materials:

- Student worksheets, printed (one per student) *Note: There is one version for Bit, and one for Evo.
- Rooftop Target, printed (one per group)
- Color Codes Reference Sheet:
<http://files.ozobot.com/stem-education/ozobot-ozocodes-reference.pdf>
(either displayed on a projector or printed)
- Butcher Paper, Optional (1 sheet about 6 feet long, per group). A clean, light-colored tabletop may also work.
- Set of markers (black, red, blue, and green, per group)
- Clear Tape
- Bit or Evo by Ozobot (one per student or group)

Mission: Santa's reindeer need to be very precise to land on a rooftop. Use the launchers and color codes to ensure your Reinbot stops somewhere on the rooftop!

Setup: (see page 2 for sample).

- Give each group a piece of butcher paper and a Rooftop Target. Let the group tape the Rooftop Target printout to the end of the paper.
- Tape the entire bottom side of the paper to ensure that the bot can travel onto the paper without getting stuck.
- Give each student a worksheet and have them cut out the components.
- Students will tape their Reinbot costumes to their bots. For Evo, make sure the costume is not covering the IR Sensors, or Evo will not be able to move forward.
- Display Color Codes Reference Sheet for students to use when filling out their launchers.

Gameplay: Students can guide themselves using student instructions on handout. If they are pre- or new readers, you may have to guide them through the activity.

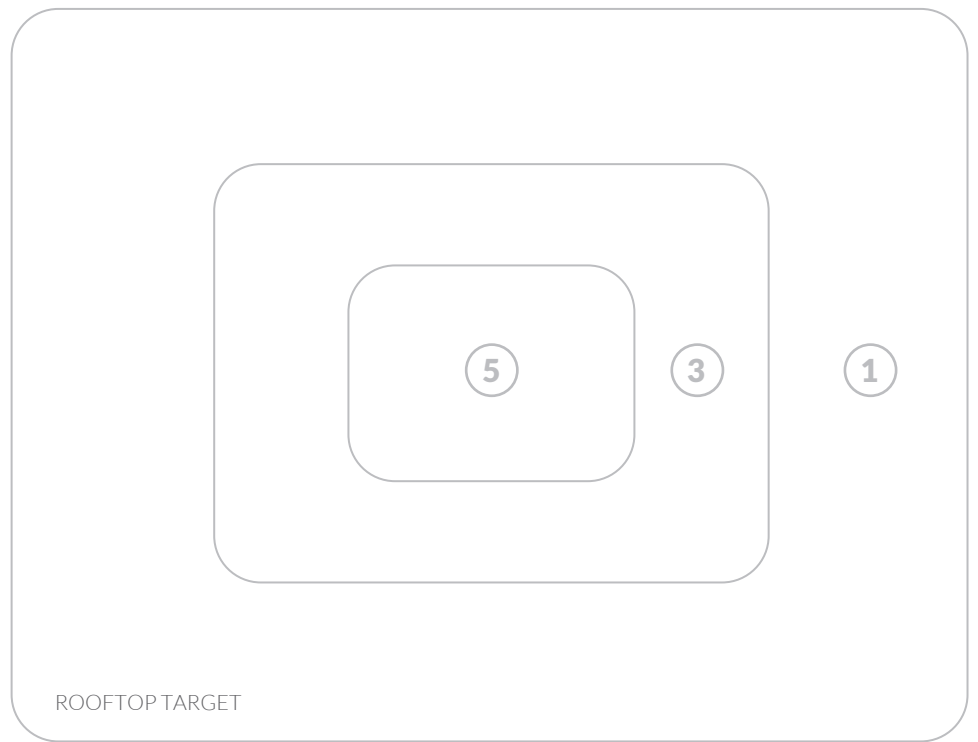
Challenge (Optional, Bit Only)

- Continue the discussion by talking about Distance Speed Time equation.

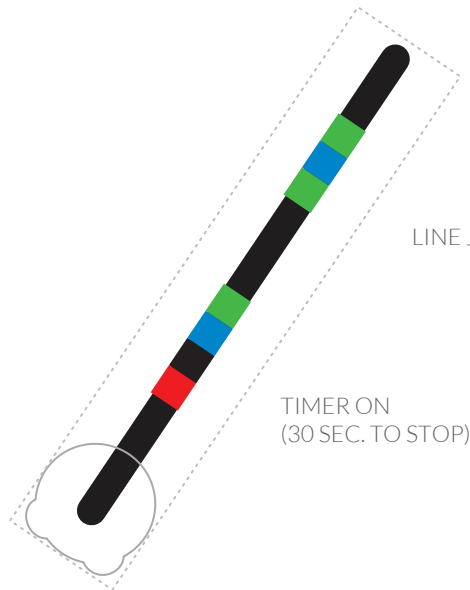
Reflection:

- How did the speed of your Reinbot affect where you placed your launcher on the paper? (Bit only)
- Did your Reinbot always travel in a perfectly straight line? How did you adjust your launcher to account for this?
- Students share their experience: What worked and what didn't.

EXAMPLE SOLUTION



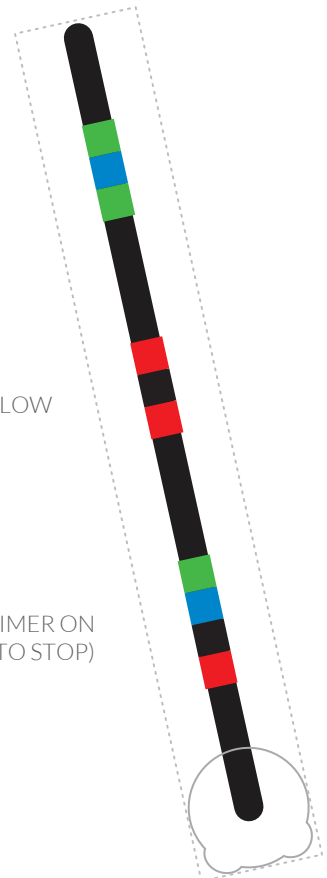
Challenge
trees on the way.



LINE JUMP STRAIGHT
Need to be last code
on the line

SLOW

TIMER ON
(30 SEC. TO STOP)



PRACTICE INSTRUCTIONS (Student's Guide)

Show Santa that your Reindeer-Bot is ready to guide his sleigh this winter!

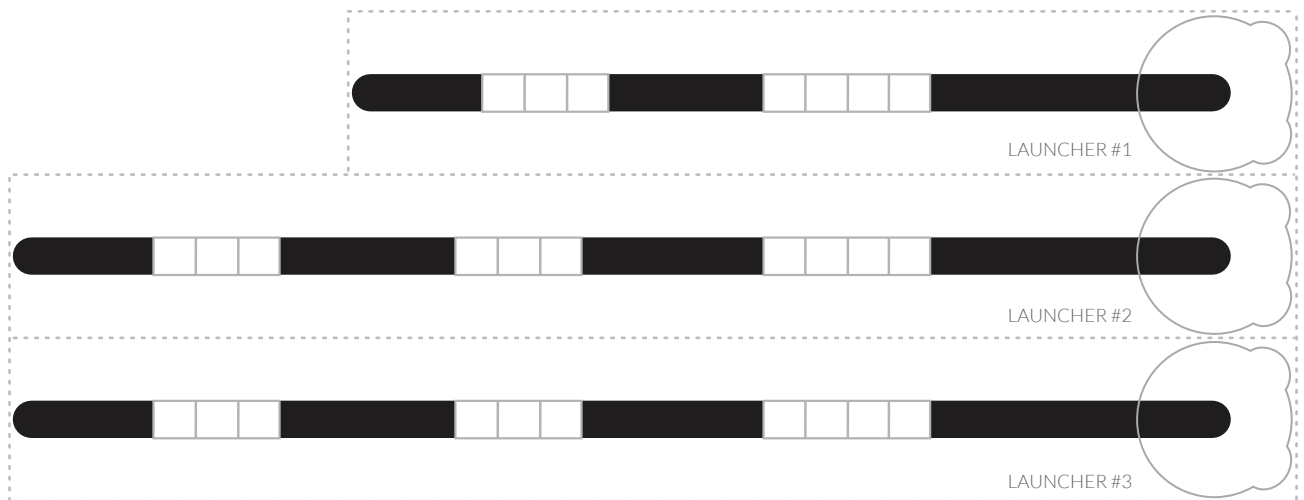
Materials:

- Scissors
- Tape
- Set of Markers (black, blue, green, and red)
- Cutouts (below)
- Color Codes Reference Sheet
- Bit by Ozobot (at least one per group)

Setup and Practice:

1. Cut out all the activity components below.
2. Tape your Reinbot costume to your bot.
3. Fill in the code boxes of your Reinbot Launchers, using the Color Codes Reference Sheet:
 - Reinbot Launcher 1: 30-second Timer and Line Jump Straight
 - Reinbot Launcher 2: 30-second Timer, Slow, and Line Jump Straight
 - Reinbot Launcher 3: 30-second Timer, Fast, and Line Jump Straight
3. Place your tree obstacle on the course (before the rooftop) for everyone to avoid.
4. On your group's Landing Course, experiment with the different launchers, trying to land on the rooftop and collect points. Decide which one(s) you'd like to use for the competition!

Compete: Take turns with your group to launch your Reinbot onto the Rooftop Target to collect points. Avoid the trees that were placed along the way so your Reinbot doesn't get stuck! After 3 rounds, whomever has collected the most points has earned a spot on Santa's Reinbot team!



PRACTICE INSTRUCTIONS (Student's Guide)

Show Santa that your Reindeer-Bot is ready to guide his sleigh this winter!

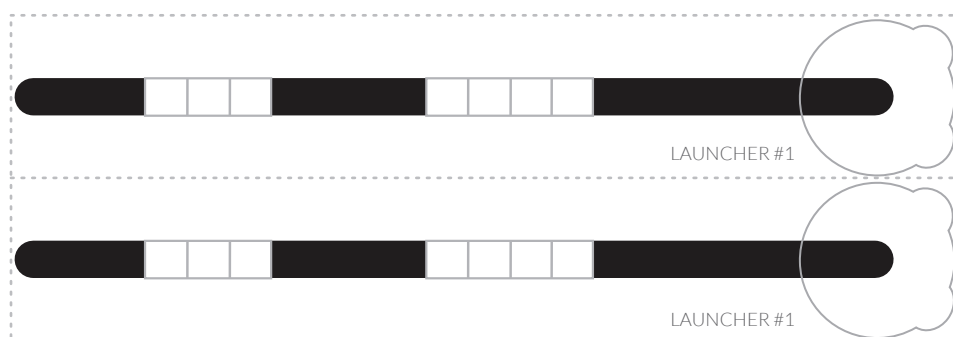
Materials:

- Scissors
- Tape
- Evo by Ozobot
- Set of Markers (black, blue, green, and red)
- Cutouts (below)
- Color Codes Reference Sheet

Setup and Practice:

1. Cut out all the activity components below.
2. Tape your Reinbot costume to your bot, but make sure not to cover the IR sensors!
3. Fill in the code boxes of your Reinbot Launchers, using the Color Codes Reference Sheet.
 - Reinbot Launcher: 30-second Timer and Line Jump Straight
4. Place your tree obstacle on the course (before the rooftop) for everyone to try to avoid.
5. On your group's Landing Course, practice accurately launching your bot onto the rooftop from your launcher, while avoiding the trees along the way!

Compete: Take turns with your group to launch your Reinbot onto the Rooftop Target to collect points. Avoid the trees that were placed along the way so your Reinbot doesn't get stuck! After 3 rounds, whomever has collected the most points has earned a spot on Santa's Reinbot team!



1

3

5

ROOFTOP TARGET