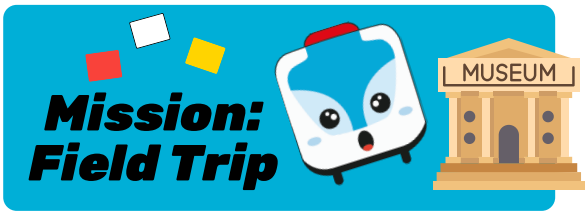
intelino coding challenges

TRY IT FOR: HOUR OF CODE

intelino® edu



Teacher Info

The Field Trip is one of intelino's coding challenges and it's a great way to participate in the Hour of Code™. Neither kids nor teachers need to know anything about coding or the intelino smart train - this activity is an introduction to both!

The activity is self-guided and works for grades K-5, although younger kids may need some help reading the instructions. There are two parts to this activity: first, students explore how the train can be programmed. In the second part, they need to solve up to three missions. These missions get more and more difficult. Younger students may be fine only solving the first level, but they can certainly try more! The last level is recommended for grades 3+. Please see the next page for general tips on teaching with intelino and for notes on this activity.

The Field Trip Mission is an unplugged coding lesson. The intelino smart train is programmed with action snaps, which are colored tiles that snap onto the track and form commands that the train can execute.

If you are new to teaching with intelino, take a look at our Teacher's Quick Start Guide. We also have more lessons and activities (unplugged or using Scratch or Python) in the intelino lab!

Grades

- K-5
- Mission 3 is for grades 3+

Code Modes

- mode 1 (action snaps), unplugged

Time

- one session
- about 1 hour

Group

up to 5 students per group

Prerequisites

none - no knowledge of coding or intelino is required

Supplies

per group:

- 1 intelino starter set with action snaps
- charged engine
- command sheet
- printout of pages 1-4, can print double-sided
- scissor

Standards

- CSTA: 1A-AP-08, 1A-AP-10, 1A-AP-11, 1A-AP-14, 1B-AP-10, 1B-AP-15
- Common Core: CCSS.MATH.PRACTICE.MP1, CCSS.MATH.PRACTICE.MP3
- ISTE: 1.1.a, 1.1.d, 1.7.b, 1.7.c

Questions? email julia@intelino.com

Tips
For the Teacher

intelino edu

Mission 1

- The end of route command is white/red/blue. Encourage students to check the command sheet and try it out. Alternatively, they can just use a stop command for the end of route.
- There are different solutions for this mission. Students may reverse after the museum or continue straight to arrive back at the depot. Either way works!

Mission 2

- This mission is more difficult than the first one, so if they get stuck, then point out that they need to use a reverse command for this mission.
- They may put a white snap on both sides of a stop command to make it work in both directions.
- Students may need to turn around the end of route command if they arrive back at the depot from a different direction than in mission 1.

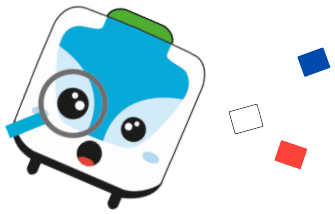
Mission 3

- The trick in this mission is to put the reverse command between the depot and the split command!

Go Step-by-Step

Start by asking your students which snaps are making the train stop at the school. Then, ask where to go at the split, and so on!

Going slowly, step by step, helps kids understand the commands and their sequence. Much like planning and writing a program line by line!



Try, then Adjust

Put a few snap commands on the track, then let the train run. Watch what happens, add or adjust snaps, and repeat this process.

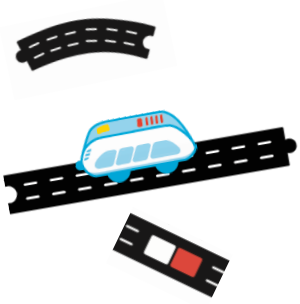
You are, in fact, programming and debugging like this!

```
> Coding
> Connection
```

Simulate the Train

Help your students visualize what the train will do by moving your hand over the track as if it was the train. Stop at snap commands and talk about what the train would do.

This process is like stepping through your software program in a simulator - something that programmers do often while debugging!



Mission: Field Trip

Ages:
3-6 with help
7+ by myself

Difficulty:
beginner

Code Modes:
mode 1 - action snaps

about 1 hour

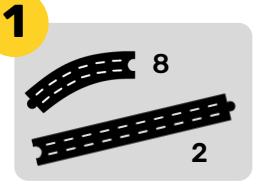
TRY IT FOR:
HOUR OF CODE

intelino®

NAME

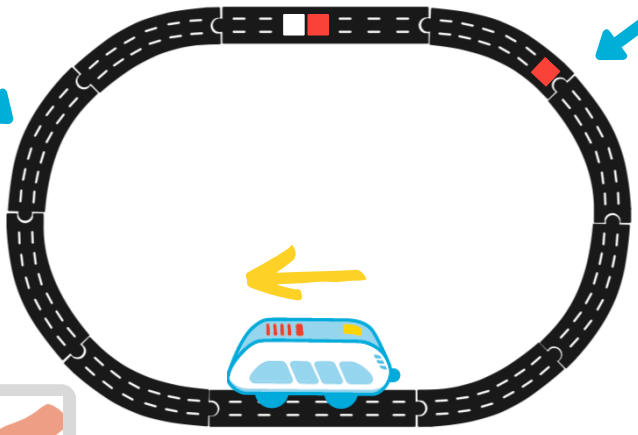
Hi, I'm Jamy! I'm a new J-1 engine.
I have a mission to complete.
But before we get to that, can you help me learn how to ride?

1

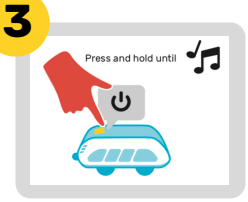


2

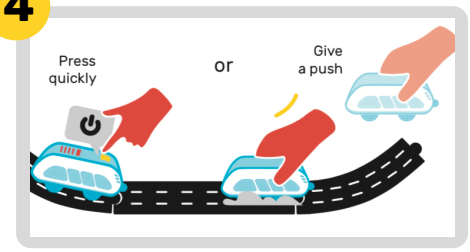
2 red
1 white



3



4

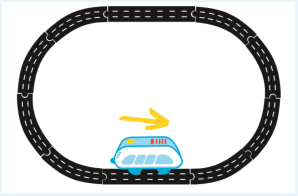


What happens?

Which one works: ▭■ or ■ ?

Turn around!

Now, let the engine drive the other way around.



How do you need to change the snaps to make the train stop?

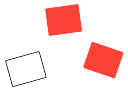
Challenge

Can you figure out how to make the engine go backwards?

Word Bank


tracks

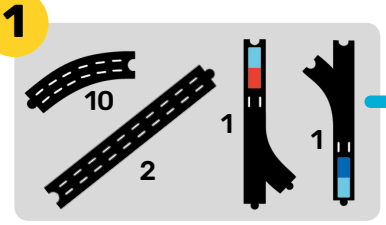

engine

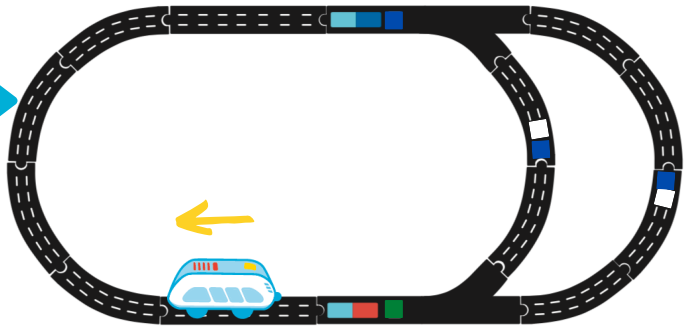

action snaps


command

Now we will learn how to steer.
This is the last train driving exercise before we can go on a mission.
Let's make a new track!

1





2

3 blue
2 white
1 green

3

How do the ■ and ■ snaps make the engine turn?

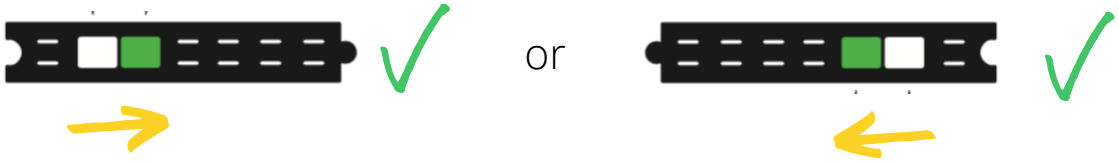
Word Bank


wagon

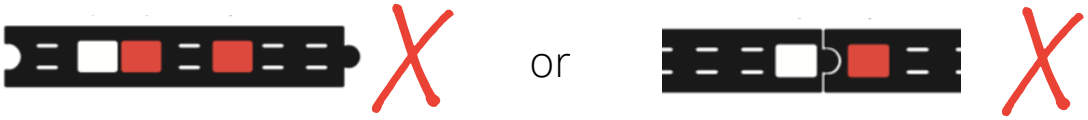

split tracks

Well done! Now you know how to program me.
Make sure you remember these rules:

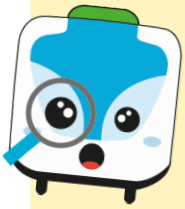
1 Always start with a white snap (unless you're on a split track)



2 Don't break up commands

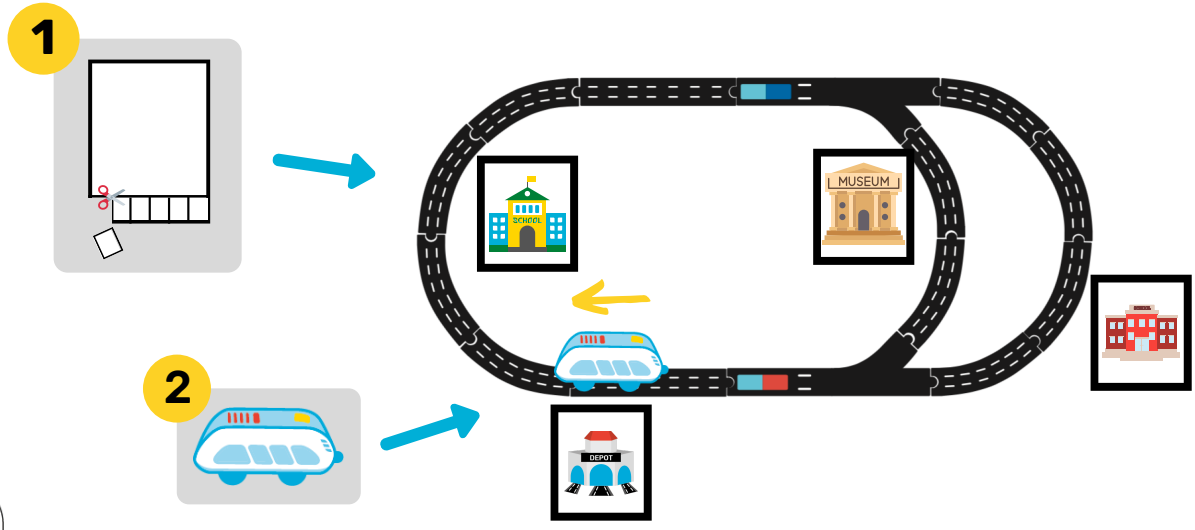


1



It's the first day of our new mission. Grades K+1 of our town's elementary school are going on a field trip to the museum. I am the smart, self-driving train that is going to take them there. But I need someone to program my route. Can you help?

We are using the same track as before, but we have to remove all snaps and add our town buildings!



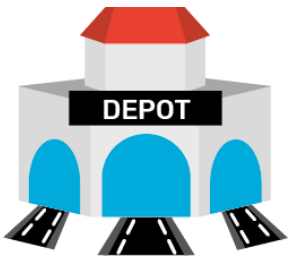
This is my schedule for today.

Use any snaps to program my route!

Tip Check the command sheet to find the end of route command

Jamy's Schedule, Day 1

DEPOT	Start
SCHOOL	Stop 2 sec to pick up students
MUSEUM	Stop 2 sec to drop off students
DEPOT	Return and **end route** at the depot



2

Today is the second day of our mission and now we are bringing grades 2+3 to the museum. The schedule is very similar, but we have to drop the students off back at school after visiting the museum. This should be no problem for you!

Jamy's Schedule, Day 2	
	Start
	**Stop 2 sec** to pick up students
	**Stop 10 sec** - we're staying and waiting for the students to go back home
	**Stop 2 sec** to drop off students
	Return and **end route** at the depot

3

It's the last day and the schedule is tough. We not only have to bring grades 4+5 to the museum, but also students from a different school. Make sure to pick up all students before going to the museum!

for grades 3+

Jamy's Schedule, Day 3	
	Start
	**Stop 2 sec** to pick up students
	**Stop 2 sec** to pick up students
	**Stop 2 sec** to drop off students
	Return and **end route** at the depot