Active agent: You

Mission start date: Immediately

Assignment:

> **A Secret Source Code has been developed. We don't know how it will be used or what it does. The Mission is to find the Secret Code, download it, and figure out how it works.**

> **You will have to complete several tasks at specific locations along the way to gain all the skills and techniques necessary to access and use The Secret Code.**
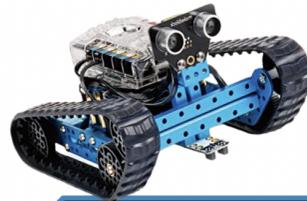
> **Further details will be forthcoming.**

> **Good luck!**

Mission 3 –
Coding for Motion and Direction

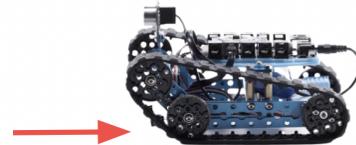**Perform more advanced movements using code to control Ranger.**

Activity 1 - Spy Movement Training

Activity 1: Spy Movement Training

1 Now that we know a bit about how to code the Ranger, let's train it to do some spy moves! Try making the Ranger:

1. Charge forward
2. Spin
3. Slowly back away

Activity 1: Spy Movement Training

You can use these blocks to move Ranger in the sequence of steps:

1. Charge forward
2. Spin
3. Slowly back away

when 🚩 clicked

turn left at power `50` % for `1` secs

move forward at power `50` % for `1` secs

move backward at power `50` % for `1` secs

2 Take some time to test and adjust your code as needed.

Activity 1: Spy Movement Training

This code should look something like yours.
But it has a bug!

when ⚑ clicked
move forward at power `100` % for `2.5` secs
turn right at power `50` % for `1` secs
move backward at power `3` % for `2` secs

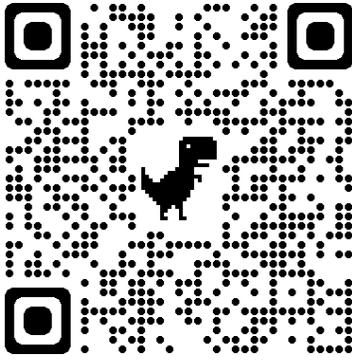**What do you think is wrong? Take a few moments to inspect.**

Activity 1: Spy Movement Training

Identifying Bugs 101

when ⚑ clicked
move forward at power `100` % for `2.5` secs
turn right at power `50` % for `1` secs
move backward at power `3` % for `2` secs

Debugging Best Practices

1. Read the code <u>line-by-line</u>.
2. Isolate and run each block of code individually.
3. Try out different <u>input</u> values. Be sure to record these changes.
4. Describe the problem to a peer.
5. Is Ranger connected?
6. Is Ranger on (with a charged battery)?

Problem Solving

ASK
to identify the need
and constraints

RESEARCH
the problem

IMAGINE
possible solutions

PLAN
by selecting a
promising solution

CREATE
a prototype

TEST
and evaluate
the prototype

IMPROVE
and redesign
as needed

ENGINEERING DESIGN PROCESS

TeachEngineering.org