# Hour of Code
# Christmas CoBlocks Challenge

*Created by Michael Fricano II, CoSpaces Edu Guru Ambassador & Training Partner*

*\* A CoSpaces Edu Pro account is needed for this activity.*

**Education level:** Grades 2 to 12

**Subject:** STEM, Computer science

**Format:** Individual activity

**Duration:** 1 hour or more!



## Introduction and lesson objectives:

During Hour of Code week, use this fun Christmas-themed CoBlocks Challenge with your students. They'll learn how to use a variety of CoBlocks with Santa and Buddy the Elf! This activity contains 3 scenes, each with their own CoBlocks challenge:

- **Challenge #1:** Program Buddy the Elf to follow a path around the Christmas tree.

- **Challenge #2:** Program Santa to move to the Christmas tree when clicked, then program the presents to "appear" under the tree.

- **Challenge #3:** Program the snowman parts to move into position when clicked to form a snowman.

## Programming goals:

- Coding an object to follow a path

- Finding different ways to make objects disappear and appear
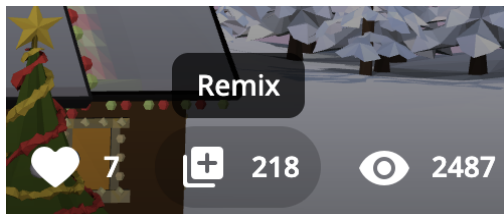
- Moving objects to X, Y, and Z coordinates
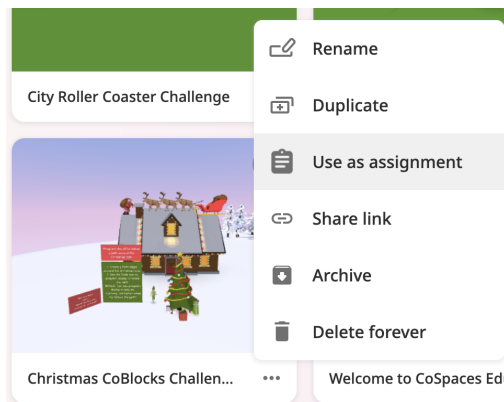
## Activity preparation:

Visit the master CoSpace using one of these:

- Share code: **RCP-PEC**

- Share link: **edu.cospaces.io/RCP-PEC**

**Remix** the master CoSpace to get a copy of your own. *A Pro account is needed to Remix. ***

**** Try Pro for FREE for 30 days for you and 99 students with this trial code:* COSMICHAELFR *(learn more **here**)*

Open your own copy of the CoSpace under your CoSpaces.

Set it up as an assignment for your students by clicking Use as assignment.

Students will work through each scene, creating CoBlocks scripts to complete each challenge. See below for each challenge overview and the CoBlocks answer key.

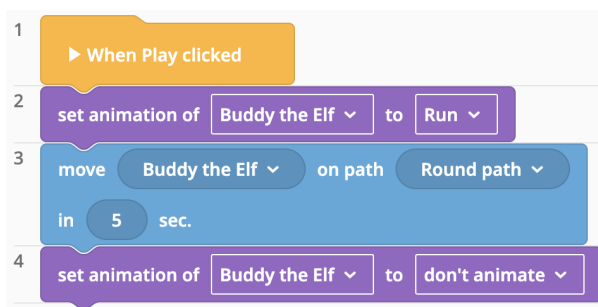This CoSpace can be used to access the CoBlocks **answer key** for each scene:

- Share code: **TGV-DWZ**
- Share link: **edu.cospaces.io/TGV-DWZ**

**Challenge #1:** Program Buddy the Elf to follow a path around the Christmas tree.

1.  First, students will need to add a round path from the Special category in the CoSpaces Library and position the path around the Christmas tree.

2.  Then, students will code a CoBlocks script to move Buddy the Elf on the path.

**Answer key:**

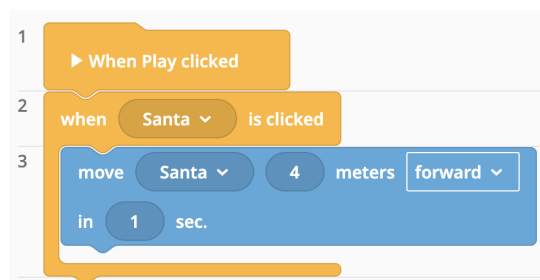| | |
|---|---|
| 1 | ▶ When Play clicked |
| 2 | set animation of  Buddy the Elf ⌄  to  Run ⌄ |
| 3 | move  Buddy the Elf ⌄  on path  Round path ⌄  in  5  sec. |
| 4 | set animation of  Buddy the Elf ⌄  to  don't animate ⌄ |

**Challenge #2:** Program Santa to move to the Christmas tree when clicked, then program the presents to "appear" under the tree.

1.  First, students will need to code a CoBlocks script that has Santa move from the fireplace to the Christmas tree.

    **TIP:** Students can use several CoBlocks methods to accomplish this:

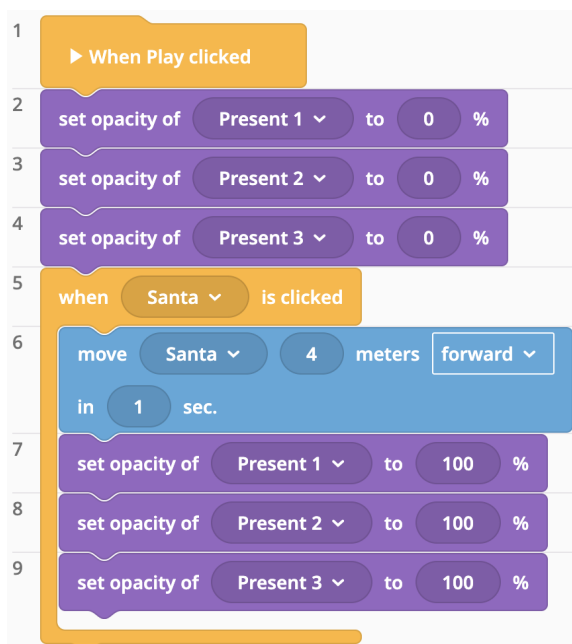    **Method A:** Program Santa with a Move CoBlock

| | |
|---|---|
| 1 | ▶ When Play clicked |
| 2 | when  Santa ⌄  is clicked |
| 3 | move  Santa ⌄  4  meters  forward ⌄  in  1  sec. |

**Method B:** Program Santa to move on a straight path (*create a straight path object first*)

```
1  ▶ When Play clicked
2  when [ Santa ▾ ] is clicked
3  move [ Santa ▾ ] on path [ Straight path ▾ ]
   in [ 5 ] sec.
```

**Method C:** Program Santa to move to X, Y, and Z coordinates

```
1  ▶ When Play clicked
2  when [ Santa ▾ ] is clicked
3  move [ Santa ▾ ]
   to  x: [ -1.69 ]  y: [ 0 ]  z: [ 0.38 ]
   in [ 1 ] sec.
```

**2.** Then, students will add CoBlocks to the script to make the presents "disappear" when the scene starts and then "appear" after Santa walks to the Christmas Tree.

```
1  ▶ When Play clicked
2  set opacity of [ Present 1 ▾ ] to [ 0 ] %
3  set opacity of [ Present 2 ▾ ] to [ 0 ] %
4  set opacity of [ Present 3 ▾ ] to [ 0 ] %
5  when [ Santa ▾ ] is clicked
6  move [ Santa ▾ ] [ 4 ] meters [ forward ▾ ]
   in [ 1 ] sec.
7  set opacity of [ Present 1 ▾ ] to [ 100 ] %
8  set opacity of [ Present 2 ▾ ] to [ 100 ] %
9  set opacity of [ Present 3 ▾ ] to [ 100 ] %
```

**Answer key:**

No matter which method students use, the opacity CoBlock can be used similarly in any method.

The opacity CoBlock set to **0%** for each present will make it **"disappear"** from the scene.

The opacity CoBlock set to **100%** for each present **after** the move CoBlock for Santa will make it **"appear"** in the scene.

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## Challenge #3:

Program the snowman parts to move into position when clicked to form a snowman.

Students will use multiple Event **when clicked** and Item **Attach** CoBlocks.

## Extension idea:



Students can create a "Find the hidden presents/ elves" game!

See **scene 6** in the **Answer key CoSpace** for an example of this extension idea.

1. Students duplicate scene 1 (Challenge #1).

2. Duplicate either the Buddy the Elf character or the presents under the tree.

3. Add objects to the scene and hide the presents around the scene.

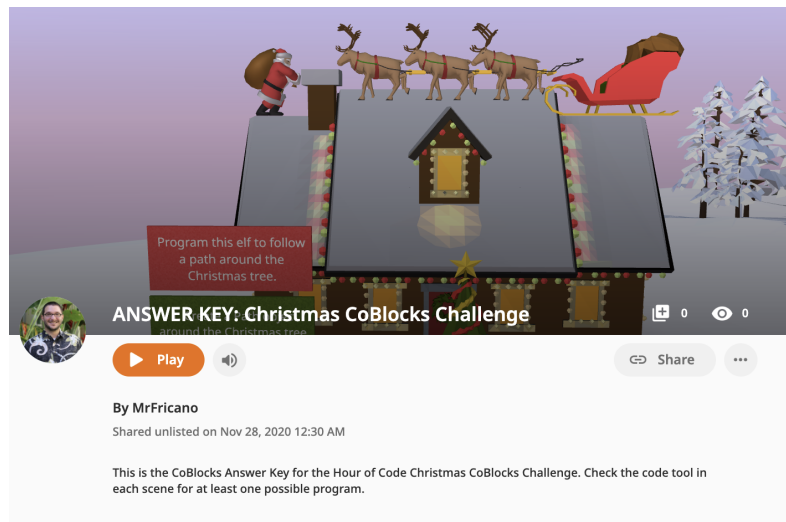4. Code each present so that when it's clicked, it disappears and appears under the Christmas tree.

# Example CoSpace
# (master CoSpace for Remixing)
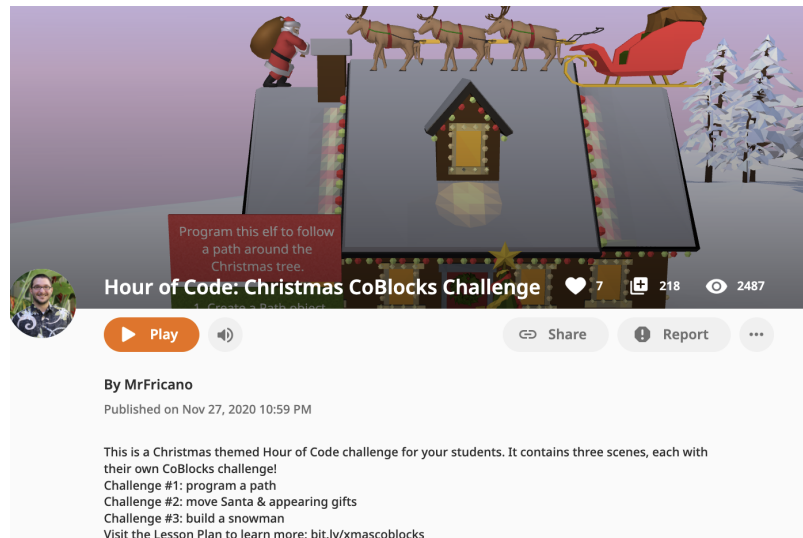


## Hour of Code: Christmas CoBlocks Challenge

### edu.cospaces.io/RCP-PEC



## ANSWER KEY: Christmas CoBlocks Challenge

### edu.cospaces.io/VSM-NMS