



## EduTrend Contents

EDUTECH · GAMIFICATION IN STEM EDUCATION · MIDDLE SCHOOL

# Bug Hunt Challenge

Find, fix and explain bugs in Scratch projects to earn team points

Ages 12–14

Level: Intermediate

50 minutes

Pairs · up to 30

Activity 04

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 student worksheets · assessment checklist

## ACTIVITY 04 · AT A GLANCE

# Bug Hunt Challenge

Pairs open three short Scratch projects prepared by the teacher, each with two or three planted bugs such as a loop that never ends, a wrong variable or blocks in the wrong order. For each bug, pairs describe what goes wrong, fix it and explain the cause. Points go to explanations, not speed. The class collects the most common bugs on a shared board.

## Learning outcomes

By the end of the session students can:

- test a program systematically;
- find and fix bugs;
- explain the cause of a bug;
- recognise common bug types.

### KEY WORDS

bug · debug · loop · variable · sequence · test

### CURRICULUM LINKS

Computing: programming and debugging. Maths: logic. English: explaining clearly.

**1****GOAL**

What is the learning goal?

**2****CHALLENGE**

What is the task?

**3****FEEDBACK**

How do players know?

**4****PROGRESS**

How is growth shown?

**5****RETRY**

Can they try again?

**6****REFLECT**

Did it help learning?

## Materials (per pair)

- Computers with Scratch (online or offline editor)
- Three prepared buggy projects
- Bug board
- Worksheets 1, 2 and 3

## Before the session

- Build three short projects and plant bugs.
- Check Scratch works on devices.
- Prepare the bug board.
- Plan pairs.

### SAFETY

Follow the school's rules for device use. Use offline Scratch or school accounts.

## ACTIVITY 04 · SESSION PLAN

# Step by step

Make one bug in each project easy so every pair scores early.

| Time                 | What happens                              | Say or ask                                   |
|----------------------|-------------------------------------------|----------------------------------------------|
| 0–5 min<br>Launch    | Explain points for find, fix and explain. | <i>“What is a bug?”</i>                      |
| 5–35 min<br>Hunt     | Pairs debug three projects.               | <i>“What did you expect? What happened?”</i> |
| 35–45 min<br>Board   | Add bugs to the class board.              | <i>“Which bug types were common?”</i>        |
| 45–50 min<br>Reflect | Share debugging strategies.               | <i>“How did you find it?”</i>                |

**CHALLENGE CARD (print or copy onto the board)**

Find, fix and explain as many bugs as you can, and add your best explanation to the class bug board.

## ACTIVITY 04 · FACILITATOR NOTES

# The STEM game know-how in brief

Debugging means comparing what a program should do with what it does, then narrowing down where the difference begins.

Programs give immediate feedback: they run or they do not. Points for explanations turn that feedback into understanding.

## Common ideas to listen for

- “Bugs mean I am bad at coding.” All programmers debug.
- “Change blocks until it works.” Test one change at a time.
- “The first error you see is the cause.” It may start earlier.

## Adapting the activity

### Support

Give hint cards pointing to the right sprite.

### Stretch

Plant a bug for another pair to find.

WORKSHEET 1

# Bug log

Name: \_\_\_\_\_

Class: \_\_\_\_\_ Date: \_\_\_\_\_

For each bug.

## Bug log

| Project | What went wrong | Fix | Cause |
|---------|-----------------|-----|-------|
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |
|         |                 |     |       |

WORKSHEET 2

# Bug types

Tally bug types found.

## Bug types

| Bug type       | Tally |
|----------------|-------|
| Loop problem   |       |
| Wrong variable |       |
| Wrong order    |       |
| Missing event  |       |
| Other          |       |

## WORKSHEET 3

# My debugging strategy

Explain how you hunt bugs.

## Steps I take to find a bug

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## FOR THE TEACHER

# Assessment checklist

Use during the session. One sheet covers up to eight students; copy as needed.

| Student | Finds bugs systematically | Fixes correctly | Explains causes |
|---------|---------------------------|-----------------|-----------------|
|         |                           |                 |                 |
|         |                           |                 |                 |
|         |                           |                 |                 |
|         |                           |                 |                 |
|         |                           |                 |                 |
|         |                           |                 |                 |
|         |                           |                 |                 |

Suggested codes: W = working towards · E = expected · G = greater depth

## ABOUT THIS ACTIVITY

Bug Hunt Challenge is a sample activity from the EduTrend Contents Edutech Gamification in STEM Education programme (middle school, level: intermediate). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at [edutrend.org](https://edutrend.org).

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