

Unit 1 - Problem Solving and Computing ('21-'22) Resources

Lesson 1: Intro to Problem Solving

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides
- [Code.org How-to Videos](#)

For the students

- [Aluminum Boats](#) - Activity Guide

Prep

For each group

- 2 sheets of aluminum foil, 5x5 inches in length each
- 1 container that can hold 3-5 inches of water
- Several paper towels or rags that can be placed under the container
- 15 pennies
- One copy of the activity guide

For the teacher

- 1 container that can hold 3-5 inches of water
- 50 pennies
- Extra paper towels or rags

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Lesson 2: The Problem Solving Process

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides
- [Problem Solving Process](#)

For the students

- [Problem Solving Process](#) - Video ([Download](#))
- [The Problem Solving Process](#) - Activity Guide

Prep

For each student

- Print a copy of Activity Guide

For the class

- Poster paper
- Markers/colored pencils

Lesson 3: Exploring Problem Solving

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Solving Problems](#) - Activity Guide

Prep

- Print the activity guide for each student
- Scratch paper for the Birthday Party problem
- Poster to record strategies for defining problems in wrap up discussion

Lesson 4: What is a Computer?

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [What is a Computer](#) - Video ([Download](#))
- [What is a Computer \(Version A\)](#) - Activity Guide
- [What is a Computer \(Version B\)](#) - Activity Guide

Prep

For each group

- Print out copies of the activity guide. Note there are two sets of pictures, but each group only needs a single set.
- Scissors (if you will not have time to cut the pictures prior to class)
- Poster paper
- Markers or colored pencils
- Glue or tape to attach pictures

Lesson 5: Input and Output

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Input and Output](#) - Activity Guide

Prep

- Prepare copies of the activity guide

Lesson 6: Processing

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Apps with Processing](#) - Activity Guide

Prep

There is no prep for this lesson.

Lesson 7: Storage

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Apps with Storage](#) - Activity Guide
- [What Do Computers Do](#) - Video ([Download](#))

Prep

- Print a copy of the activity guide for each student

Lesson 8: Project - Propose an App

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Apps and Problem Solving](#)
- [Apps and Problem Solving](#) - Peer Review
- [Apps and Problem Solving](#) - Rubric
- [Apps and Problem Solving - Student Checklist](#) - Resource
- [Computer Science Practices](#) - Reflection

Prep

- Print a copy of [Apps and Problem Solving](#) for each pair of students
- Poster paper, pens, markers and other supplies for making posters

Lesson 9: Intro to Problem Solving - Newspaper Table (Alternate Lesson 1)

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides
- [Code.org How-to Videos](#)

For the students

- [Build a Newspaper Table](#) - Activity Guide

Prep

For each group

- 2 full newspapers for each group of students
- 1 roll of tape for each group of students
- One copy of the activity guide

For the teacher

- 10-20 books of similar weight.

Lesson 10: Intro to Problem Solving - Spaghetti Bridge (Alternate Lesson 1)

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides
- [Code.org How-to Videos](#)

For the students

- [Spaghetti Bridge - Activity Guide](#)

Prep

For each group

- 1 pound of dry spaghetti noodles (about 1 box)
- 1 glue gun
- One copy of the activity guide

For the teacher

- 10-20 books of similar size and weight

Lesson 11: Intro to Problem Solving - Paper Tower (Alternate Lesson 1)

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides
- [Code.org How-to Video Playlist](#)

For the students

- [Paper Tower](#) - Activity Guide

Prep

For each group

- 20 sheets of paper, 8.5 x 11 inches
- Space to build their tower
- One copy of the activity guide

For the teacher

- Extra paper
- Timer
- Ruler

Lesson 12: Exploring Problem Solving - Animals Theme (Alternate Lesson 3)

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Solving Problems](#) - Activity Guide
- [Tangrams](#) - Resource

Prep

- Print the activity guide for each student
- Prepare tangrams for students, or print out one tangram sheet and get scissors for each group.
- Poster to record strategies for defining problems in wrap up discussion

Lesson 13: Exploring Problem Solving - Games Theme (Alternate Lesson 3)

Resources

For the teachers

- [CSD Unit 1 - Problem Solving and Computing](#) - Slides

For the students

- [Solving Problems](#) - Activity Guide

Prep

- Print the activity guide for each student
- Scratch paper for the Partner Race Relay problem
- Poster to record strategies for defining problems in wrap up discussion