

Bebras Unplugged Advice for Educators

The Australian Digital Technologies curriculum was designed for students to develop increasingly sophisticated Computational Thinking skills.

Computational Thinking is being able to think logically, algorithmically, recursively and abstractly. These cards are adapted from the biannual Bebras Challenge. These questions focus on applying and developing Computational Thinking skills to solve problems and answer questions. They are designed to be used without additional resources and can be used by individual students and in small groups. Suggested learning activities can be found on the reverse of this card.

Solution finding and problem solving

Each question card includes both a suggested answer to the question and one key Computational Thinking skill that is used to solve the problem. Multiple Computational Thinking skills are used in all questions. The highlighted skill is just one solution, used to generate discussion about the Computational Thinking skills.

Use the available **Thinking About Computational Thinking** reflection worksheet and encourage class and peer discussion about problem solving and the skills used.

Suggested classroom activity

- Distribute cards to students, either in small groups or individuals.
- Explain the question cards and the definition cards.
- Emphasise it is not a race to get the correct answer.
- Give students time to solve the problem – they may need scrap paper to carry out some working out or to record their answer.
- When students have an answer, they should flip for the solution and the Computational Thinking skill.
- Students should read the answer and discuss the identified Computational Thinking skill, and other Computational Thinking skills used to solve the problem.

Extension ideas

- Use the **Thinking About Computational Thinking** worksheet as a reflection tool.
- Ask students to rotate problem cards and record answers and skills. Get students to Think-Pair-Share about similarities and differences in processes and ideas.
- Ask students to do a mini presentation about their question and problem solving process.
- Use questions as a springboard into Digital Technologies curriculum content by drawing on how those skills relate and are used in your current project or topic.

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Bebras Unplugged Instructions

The six Computational Thinking symbols and colours



DECOMPOSITION

Breaking down data, processes, or problems into smaller, manageable parts.



MODELLING AND SIMULATION

Developing a model to imitate processes and problems.



PATTERN RECOGNITION

Observing patterns, trends, and regularities to make sense of data.



ALGORITHMS

Creating an ordered series of instructions for solving similar problems, or for doing a task.



ABSTRACTION

The process of identifying and extracting relevant information, and ignoring or removing unnecessary information.



EVALUATION

Determine effectiveness of a solution, generalising and applying that information to new problems.

Question card colours

The different coloured question cards indicate the difficulty level.



BEGINNER



INTERMEDIATE



ADVANCED



EXPERT

Flags

The flags represent the country the question originated from.



Switzerland



United Kingdom



Australia

How to use the cards

Solve the problem, thinking about why the other options are wrong before you flip for the solution.

Before you flip, choose a **Computational Thinking** card that you think best matches your strategy for solving this problem.

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