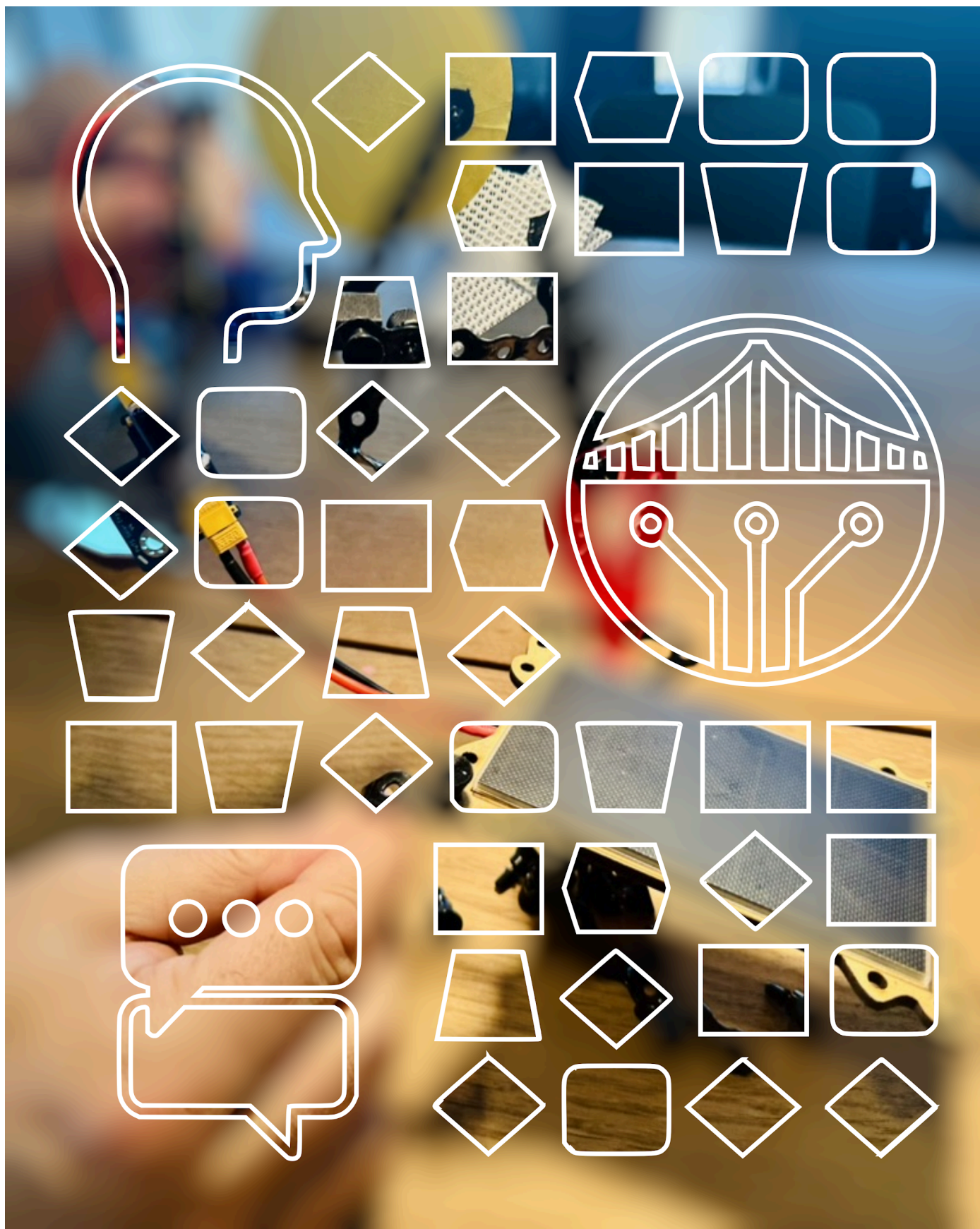
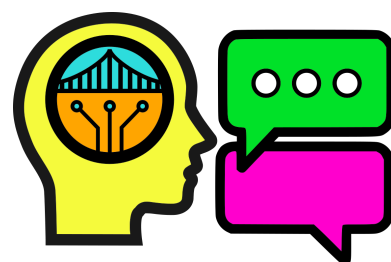
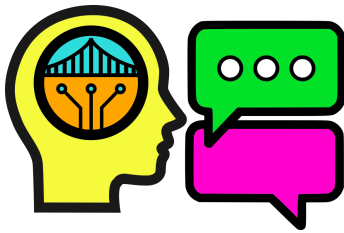




Example 2 - A LEGO® Spike Prime Workshop for Children





A LEGO® Spike Prime Workshop for Children

Lesson summary

This workshop combines storytelling, Computational Thinking (CT), robotics, and creativity. Using a children's novel, short story, or narrative universe as inspiration, participants explore how robots and technology can solve problems, support characters, or interact with the fictional world.

The workshop introduces programming and robotics in a playful and meaningful context while encouraging creativity, collaboration, and critical reflection.

The story provides a meaningful context for the robotics activities, helping participants connect technical skills with creativity, problem-solving, and imagination.

Target Audience: 11-14 years old

Duration: Approximately 2.5–3 hours, depending on the amount of time allocated for the building activities.

Learning goals:

Participants will:

- Explore Computational Thinking through hands-on activities.
- Design, build, and program robots using LEGO Spike Prime.
- Connect technological solutions to challenges found in stories.
- Practice collaboration, problem-solving, and iterative design.
- Reflect on the role of technology and robots in society and fiction.

Online or offline: offline

Computational Thinking:

The workshop is designed around Computational Thinking principles, although these concepts are introduced through practical activities rather than formal instruction.

Throughout the workshop, participants engage with Computational Thinking by:

- Breaking complex challenges into smaller tasks



- Designing and testing solutions
- Identifying and correcting errors
- Improving their designs through iteration
- Collaborating to solve problems

Rather than teaching CT as a separate topic, the concepts are embedded in the storytelling, building and programming activities.

Materials

- LEGO® Education SPIKE™ Prime sets
- Tablets/laptops with the LEGO® Education SPIKE™ App
- Chargers
- The chosen book/story and selected excerpts
- Visual material related to the story (slides, images, illustrations, etc.)
- Projector/screen
- Suitable space for building and testing robots

Preparation

Select a story that includes one or more of the following:

- A journey or adventure
- Challenges that require solutions
- Interesting environments or settings
- Technology, inventions, creatures, or machines
- Ethical dilemmas or societal issues

The story may be:

- A novel
- A picture book
- A short story
- A local folk tale
- A graphic novel

The workshop works best when participants are introduced to a fictional world that contains problems, obstacles, or situations that can inspire robotic solutions.

Evaluation

The teacher or facilitator can evaluate participants' learning through observation and short questions throughout the workshop.

During the activities, observe whether participants:

- Understand and engage with the challenge presented in the story.
- Can develop and explain ideas for how a robot could address a problem.
- Apply Computational Thinking by breaking problems into smaller tasks, testing solutions, identifying errors, and making improvements.



- Collaborate and communicate within their group.
- Can explain the connection between their robot and the story.

The teacher or facilitator can also use short questions during the workshop, such as:

- What are you trying to make the robot do?
- What is the problem you are trying to solve?
- What have you tried so far?
- What went wrong, and what could you change?
- Why did you choose this solution?
- How does your robot connect to the story?

The final robot demonstration can be used as an opportunity to assess whether participants can explain their design choices, problem-solving process, and connection to the story.



Lesson Description

Introduction (15-20 minutes)

The facilitator introduces the participants to the story and creates a shared understanding of the fictional world.

1) The story and its setting

Give the participants a brief introduction to where and when the story takes place. Use images, illustrations, maps, slides, or a short read-aloud excerpt to help them visualise the setting.

2) Main characters

Introduce the most important characters and briefly explain who they are, their relationships, and what is important to them. Focus on the characters that are relevant to the activities later in the workshop.

3) Key challenges or conflicts

Introduce the main problem, challenge, or conflict that the characters face. Give the participants enough information to understand the situation, but avoid revealing the whole story. The challenge should ideally provide inspiration for the first robotics activity.

4) Relevant themes

Briefly highlight themes from the story that may be relevant to the workshop, such as friendship, survival, technology, nature, identity, community, or the relationship between humans and machines.

The aim is not to retell the entire story, but to give participants enough context to enter the story world and become curious about what happens next.

Story segment (10 minutes)

Present the first challenge from the story. The challenge should give participants a concrete problem to think about and provide inspiration for the first robotics activity.

Examples:

Characters encounter dangerous animals: The characters need to find a way to stay safe, detect animals, scare them away, or move through an area without being noticed.

Characters need transportation: The characters need to travel from one place to another and need a vehicle, machine, or robot that can help them move.

Characters become lost: The characters need to find their way, explore an unfamiliar area, or locate a specific person or place.



Characters need help communicating: The characters are unable to communicate with each other or with someone else and need a technological solution to send, receive, or signal information.

Characters must survive in a difficult environment: The characters face conditions such as extreme weather, dangerous terrain, darkness, or lack of resources and need a solution that can help them navigate, find resources, or stay safe.

The examples above are only suggestions. The challenge should be adapted to the chosen story and can involve any situation that invites participants to imagine how a robot or technological solution could help the characters.

Questions you can ask the participants:

- What problems do the characters face?
- How could technology help?
- What kind of robot might exist in this world?

Build Session 1 – Character or Creature Robot (45-60 minutes)

Participants design and build a robot inspired by the story. Depending on their prior experience, participants may need an introduction to LEGO Spike Prime building and programming before starting the activity.

Possible examples:

- Animal robot
- Helper robot
- Exploration robot
- Rescue robot
- Creature from the story universe

Participants experiment with:

- Movement
- Sounds
- Lights
- Sensors

Groups briefly present what their robot does and how it connects to the story.

Possible presentation formats:

Short demonstration: The group demonstrates what the robot can do and briefly explains how it could help the characters in the story.

Storytelling: The group presents their robot as if it were part of the story. They explain who uses it, what problem it solves, and what happens when it is introduced into the story world.



Story Segment 2 (10 min)

Continue the story. Introduce a new event, obstacle, or discovery.

Examples:

- A threat appears.
- A mission must be completed.
- New characters are introduced.
- A mystery needs solving.

Use short excerpts from the chosen story to maintain narrative engagement.

Build Session 2 – Functional Robot Challenge (45–60 min)

Participants may either improve their existing robot or design a new robot inspired by the next challenge in the story.

Possible challenges:

- Transporting an object
- Escaping danger
- Delivering a message
- Performing a dance or celebration
- Guarding a location
- Collecting resources

Encourage multiple solutions. There is no single correct answer.

Showcase and Reflection (15 min)

Each group demonstrates:

- Their robot
- The programming they used
- How the robot fits into the story

Encourage participants to explain their design decisions and problem-solving process. Ask reflection questions. Use the list under “Appendix 1: Reflection Questions” to find inspiration.

Closing: Story Ending (10 min)

Finish with:

- An open ending to the story
- A cliffhanger
- A teaser from later in the book

The aim is to encourage curiosity and further reading.



Appendix 1 Reflection Questions

The following questions can be used to encourage reflection. They may be discussed in groups or as a whole-class discussion.

Robotics and Problem Solving

- What was the most difficult part: building, programming, or testing?
- How did your group solve problems together?
- What changes did you make during the process?
- What did you learn about how robots work?

Story Connection

- How does your robot fit into the story world?
- What role would it play?
- How would the story change if your robot existed in it?
- What problem does your robot solve?

Ethics and Technology

- Who is responsible for a robot's actions?
- Should robots always follow human instructions?
- Can technology solve every problem?
- Are there situations where technology creates new problems?
- Should robots be treated differently if they look like humans or animals?
- What rules would you create for robots in this fictional world?



Appendix 2: Tips for Facilitators

- Focus on creativity rather than technical perfection.
- Allow participants to test, fail, and redesign.
- Use the story as a source of inspiration rather than a fixed script.
- Encourage multiple interpretations of the same challenge.
- Emphasize collaboration and experimentation.
- Encourage iterative design: participants should test, evaluate, and improve their robots throughout the workshop rather than aiming for a perfect solution from the beginning.



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