Lesson Plan

Title of the Lesson	EUREKA! I am an Inventor!
Duration	1 hour
Teaching methods and strategies	• **Storytelling:** Share the stories behind famous inventions to inspire creativity. • **Peer Collaboration:** Students work in groups to foster teamwork and shared problem-solving. • **Hands-on Learning in Groups:** Engaging students in making and creating their own inventions. • **Simplified Group Discussions:** Break down discussions into small, simple prompts, encouraging every student to contribute, either verbally or through drawing. • **STEAM Integration:** Incorporate coding, 3D printing, and maker tools (e.g., Lego, wood blocks) to design and prototype inventions.
Learning Outcomes	• Understand key vocabulary: invention, inventor, discovery, patent, accessibility, and universal design. • Identify how accessible design supports people with disabilities. • Work collaboratively to design and present a new invention with inclusive features. • Apply universal design principles and STEAM concepts (including coding and 3D printing) to real-world challenges. • Develop empathy and inclusive thinking through design and problem-solving.

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Steps to be Followed	**a) Introduction (5-10 minutes)** • Start the lesson by asking students to share their favourite item. Questions can be: "What is it?", "Who can use it?", "Are there people who might not be able to use it, and why?", "What makes it special?" • Ask students to share their responses, and summarise key points about accessibility and the importance of certain items in daily life. • Use their answers to introduce the concept of accessibility and the importance of inclusive inventions. **Adaptation for Inclusivity** • Students with speech impairments can write down or draw their answers. • Students with visual impairments can prepare an oral response. • Shy students can have help from a teacher or a friend. • Students with comprehension difficulties can do the task longer and receive examples or templates of figures on how to prepare an answer to the task. **b) Main Content (30-40 minutes)** **Part 1: Exploring Inventions:** • Discuss what inventions are and their purpose. Emphasize accessibility and universal design, explaining how inventions evolve to support more users. • Introduce the concept of patents and discovery and briefly explore the impact of accessible design.

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	• Split the students into small groups. Each group receives: a. A puzzle box with image or object pieces representing an invention. b. A short biography of the inventor and the invention's origin story (The Telephone, the Typewriter and the Radio). • Ask the groups to: c. Solve the puzzle to discover the invention. d. Read the story and discuss: i. How does the invention help people? ii. How has it changed to support more users over time? • After the discussion, guide students to simulate a basic version of the invention using a visual coding tool (e.g., Scratch or Blockly). For example, students can create a simple digital simulation of how a telephone transmits sound, or how a typewriter responds to keyboard inputs. **Adaptation for Inclusivity** • Use tactile puzzle pieces or Braille cards for sensory access. • Provide audio versions of the stories for students with reading difficulties. • Encourage peer support for reading and assembling puzzles. **Step 2: Designing Accessible Inventions** • Explain to students the main principles of universal design and why it's important for products to be inclusive. Discuss accessibility features such as easy-to-use interfaces, adaptive functions, and universal usability.

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	• In groups, ask students to brainstorm and design an accessible invention that could support people with disabilities in everyday tasks (e.g., at home, at school, or while commuting). Encourage them to consider universal design principles and real-life challenges. • Provide students with the following invention prompts as inspiration (they may choose one of these or propose their own idea): a. A magnetic walking stick that vibrates when near obstacles b. A robot assistant for learning and communication c. A juice-making machine that helps people with motor impairments • Each group selects one of the following formats to present their invention: d. Build a physical prototype using LEGO, wooden blocks, or available classroom materials e. Create a detailed technical drawing or blueprint including labels and accessibility features f. Use a visual coding tool (e.g., Scratch or Blockly) to simulate how the invention works, showing key functions like movement, feedback, or user interaction. **Adaptation for Inclusivity** • Provide larger building blocks or easy-grip tools for students with motor challenges. • Use textured, visual, and auditory tools to support varied learning needs. • Allow extended time, simplified instructions, or step-by-step guidance. • Encourage flexible group roles (e.g., designer, builder, explainer) so each student can contribute. **3. Wrap-Up/Review** • Invite each group to present:

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	a. What their invention is and how it works. b. Who it helps and how it's accessible. c. Why it's important and where it could be used or produced. • Prepare a short quiz to review the key concepts learned. Question and Answer Format: Students match inventors with their inventions or identify features of accessible designs. The quiz serves as a quick recap of the day's lessons. **Adaptation for Inclusivity** • Allow presentations in any format: verbal, visual, drawing-based, or through assistive tech. • Let students use gesture, pointing, or partner explanations to support communication.
Required material and resources	• **Photographs or printed diagrams** of famous inventions • **Puzzle kits** with images or tactile pieces • **Lego** or **wooden building blocks** for prototyping • **Paper, pencils, markers** for drawing blueprints • **Templates or blueprints** for design ideas • **Audio stories or Braille versions** of inventor biographies (if needed) • **Visual aids** or **short videos** on accessibility and inventions • **3D printer** (optional, for post-class prototyping) • **Coding tools**: **Scratch** or **micro:bit** for interactive projects
Assessment or evaluation techniques	• Problem-Solving Skills: Evaluate how students talk about the most important inventions for humans. This can be

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	observed through their adjustments and improvements during the conversation process. • Group Work and Collaboration: Assess how well students work in their assigned roles (e.g., designer). This includes how they interact with peers, offer support to others, and ensure each member contributes to the group task. Prioritize the inclusion of all members in the activity.
Ethical Considerations	• **Respect for All Abilities**: Encourage and model respect for all students, making sure to affirm all contributions. Some students may need more time or different ways to express their ideas. • **Positive Reinforcement**: Offer praise for effort and creativity, ensuring that every student feels confident sharing their thoughts and designs. • **Inclusive Language**: Use language that is simple and inclusive, avoiding any language that could unintentionally exclude students or make them feel different. • **Safety and Well-Being**: Use **age-appropriate building materials** and monitor students using tools or technology.

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