# 🛠️ Lesson 6: Invent a Tool Challenge – Problem Solving with Found Materials

Subject: STEAM / Science / Design Thinking

Grade Level: 3–6

Lesson Time: 60 minutes

Materials Needed:

* - Found objects: sticks, string, paper, leaves, stones, bottle caps, boxes
* - Optional building tools: scissors, tape, glue, rubber bands
* - Design Station: paper, pencils, crayons (optional: clipboards or boards to write on)
* - Build & Test Station: collection of reusable, clean, and safe craft or scrap materials
* - Open outdoor or classroom space for team collaboration

## 1. Learning Objectives

* Students will use design thinking to create tools that solve real or imagined problems.
* Students will collaborate and test prototypes using everyday items.
* Students will reflect on how creativity and science work together.

## 2. Group Activity / Warm-Up

Activity: “What’s That For?”

Hold up a random object (leaf, plastic spoon, stone, cup). Ask: “How many ways could this be used?” Encourage imaginative answers (e.g., a fan, a shoe, a signal, a paintbrush).

## 3. Circle Time Discussion: Tapping Into Prior Knowledge

Ask: “Have you ever had to fix something or build something from what was around you?” “What tools do we use every day?” “Why do inventors build new tools?” Introduce the idea that tools are creative solutions—and anyone can be an inventor.

## 4. Main Activity: Invent a Tool Challenge

Challenge Prompt Options:

* Invent something that keeps your head dry during the rainy season.
* Create a tool that helps someone carry more things.
* Design something to protect a small animal or toy.
* Solve a classroom problem (e.g., quiet signal, pencil holder, book stand).

Instructions:

* In small groups, brainstorm a tool idea.
* Sketch it or talk it out.
* Build a prototype using available materials.
* Prepare to present it: What problem does it solve? How did you build it? How well does it work?

## 5. Self-Assessment / Practice Through Stations

* 🧠 Brainstorm Station – Posters or boards with “challenge prompts”.
* ✍️ Design Station – Drawing or labeling ideas using pencils, paper, crayons.
* 🛠️ Build & Test Station – Try, rebuild, and refine ideas using available materials.

Reflection prompt: “What did your team learn while building?” “If you could change one thing, what would it be?”

## 6. Peer Engagement & Reflection

Group presentations of each invention. Audience gives warm feedback:
- “One thing that’s clever…”
- “One thing we’d like to know more about…”
Create a mini “Invention Gallery” by displaying photos or sketches.

## 7. Action Break: The Inventor’s Walk

Pretend to be a famous inventor walking through town. Mime using your own tool while others guess what it does. Add silly sound effects or dramatic inventions to bring joy.

## 🧠 What Makes This Finnish-Inspired

* Encourages curiosity, trial-and-error, and iterative learning.
* Focuses on student-created meaning, not right answers.
* Connects learning to the environment and daily life.
* Empowers teamwork and ownership of learning.

## 📘 Connected CBC Competencies

* Creativity and Innovation
* Critical Thinking and Problem Solving
* Collaboration and Communication
* Practical Application of Knowledge

## 💡 Real-Life Skills Developed

* Engineering mindset and design thinking
* Perseverance and adaptability with real-world materials

## 💬 SEL Connection

* Strengthens teamwork and problem-solving in groups
* Builds pride and ownership in creative thinking