My STEAM Skills Tree

This activity helps mentees visualize their STEAM skills, track progress, and set goals by creating a personalized STEAM skill tree. It connects their current abilities to future learning opportunities and career paths.

Process:

1. Preparation (Before the Session)
- Understand the Concept: Review the skill tree template and the mentee's responses from the STEAM diagnostic tool.
- Gather Materials:
  - Blank skill tree templates (see downloadable)
  - Digital tools (Excel chart, online skill trackers) or pens and markers
- Set Objectives:
  - Map current STEAM skills
  - Identify new areas to explore
  - Connect skills to real-world careers

2. Introduction (5 min)
- Start with a casual chat about their week or recent STEAM experiences.
- Set the Stage: Explain:
- "Today, we'll build your STEAM skill tree—mapping your strengths and exploring new skills based on careers that interest you."

3. Review Mentee's Current Skills (10 min)
- Discuss Their Responses: Review the diagnostic form and ask clarifying questions.
- Explore Confidence Levels:
  - Example question: "Which area do you feel strongest in? Which one are you curious to try?"

4. Introduce the STEAM Skill Tree (10 min)
Explain the Structure:
- Each branch represents a STEAM field (Science, Technology, Engineering, Arts, Math).
- Skills range from foundational to advanced.

Show Examples:
- Display a completed skill tree (if available).
- Share career case studies (e.g., "An engineer needs problem-solving, physics, and data analysis skills.").

Process:

5. Create the Mentee's Skill Tree (15 min)
- Map Current Skills: Work together to fill in the branches with what they already know.
  - Technology: "You've done some Scratch coding."
  - Engineering: "You enjoy building with LEGO and puzzles."
- Identify Gaps & Interests:
  - Example: "You mentioned you've never tried 3D printing. Let's add it to your tree."
- Use colors to differentiate:
  - Strengths (color-filled)
  - New areas to explore (left blank—color in when they try it).

6. Set Goals and Next Steps (10 min)
- Short-Term Goals: Choose 1-2 new skills to explore before the next session.
  - Example: "Let's find an online tutorial for 3D modeling."
- Long-Term Goals: Connect their skill tree to broader aspirations.
  - Example: "Interested in renewable energy? Learning physics and data visualization could be useful."
- Plan Activities: Suggest workshops, tools, or resources for developing new skills.

7. Wrap-Up and Reflection (5 min)
- Review Their Skill Tree: Celebrate their current strengths and growth areas.
- Ask: "What part of today's session did you find most exciting or surprising?"
- Plan a follow-up session to review progress and update the skill tree.

8. Document and Share
- Keep a digital or physical copy for tracking progress.
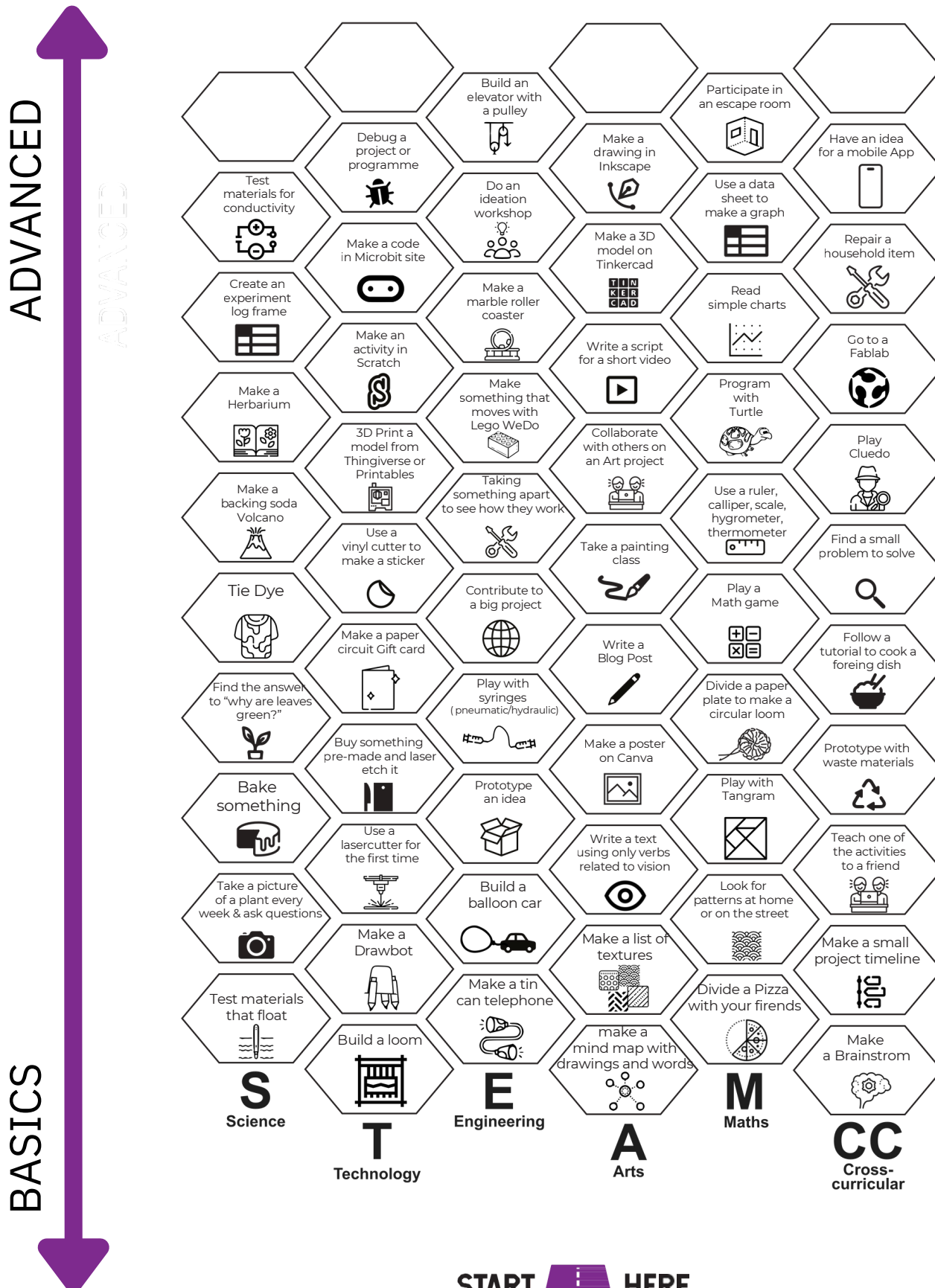- Draft a simple action plan for the new skills they want to explore.

Reflection Questions:
- How does mapping your skills help you see your growth in STEAM?
- Which new skills are you most excited to try?
- How can you connect your interests to possible STEAM careers?

STEAM SKILLS 8-15

Skill Tree: Color in the boxes and level up your skills

Use for individuals or as a group by picking a color each and coloring in a part of the box. Everyone's journey is different and you can interpret the goals flexibly. The aim is to inspire you to learn and try new things. Not everything needs to be completed.

ADVANCED

BASICS

Science (S)
- Test materials for conductivity
- Create an experiment log frame
- Make a Herbarium
- Make a backing soda Volcano
- Tie Dye
- Find the answer to "why are leaves green?"
- Bake something
- Take a picture of a plant every week & ask questions
- Test materials that float

Technology (T)
- Debug a project or programme
- Make a code in Microbit site
- Make an activity in Scratch
- 3D Print a model from Thingiverse or Printables
- Use a vinyl cutter to make a sticker
- Make a paper circuit Gift card
- Buy something pre-made and laser etch it
- Use a lasercutter for the first time
- Make a Drawbot
- Build a loom

Engineering (E)
- Build an elevator with a pulley
- Do an ideation workshop
- Make a marble roller coaster
- Make something that moves with Lego WeDo
- Taking something apart to see how they work
- Contribute to a big project
- Play with syringes (pneumatic/hydraulic)
- Prototype an idea
- Build a balloon car
- Make a tin can telephone

Arts (A)
- Make a drawing in Inkscape
- Make a 3D model on Tinkercad
- Write a script for a short video
- Collaborate with others on an Art project
- Take a painting class
- Write a Blog Post
- Make a poster on Canva
- Write a text using only verbs related to vision
- Make a list of textures
- make a mind map with drawings and words

Maths (M)
- Participate in an escape room
- Use a data sheet to make a graph
- Read simple charts
- Program with Turtle
- Use a ruler, calliper, scale, hygrometer, thermometer
- Play a Math game
- Divide a paper plate to make a circular loom
- Play with Tangram
- Look for patterns at home or on the street
- Divide a Pizza with your firends

Cross-curricular (CC)
- Have an idea for a mobile App
- Repair a household item
- Go to a Fablab
- Play Cluedo
- Find a small problem to solve
- Follow a tutorial to cook a foreing dish
- Prototype with waste materials
- Teach one of the activities to a friend
- Make a small project timeline
- Make a Brainstrom

1 tile = 1 point

START HERE

Name: _____

STEAM SKILLS 16-25

Skill Tree: Color in the boxes and level up your skills

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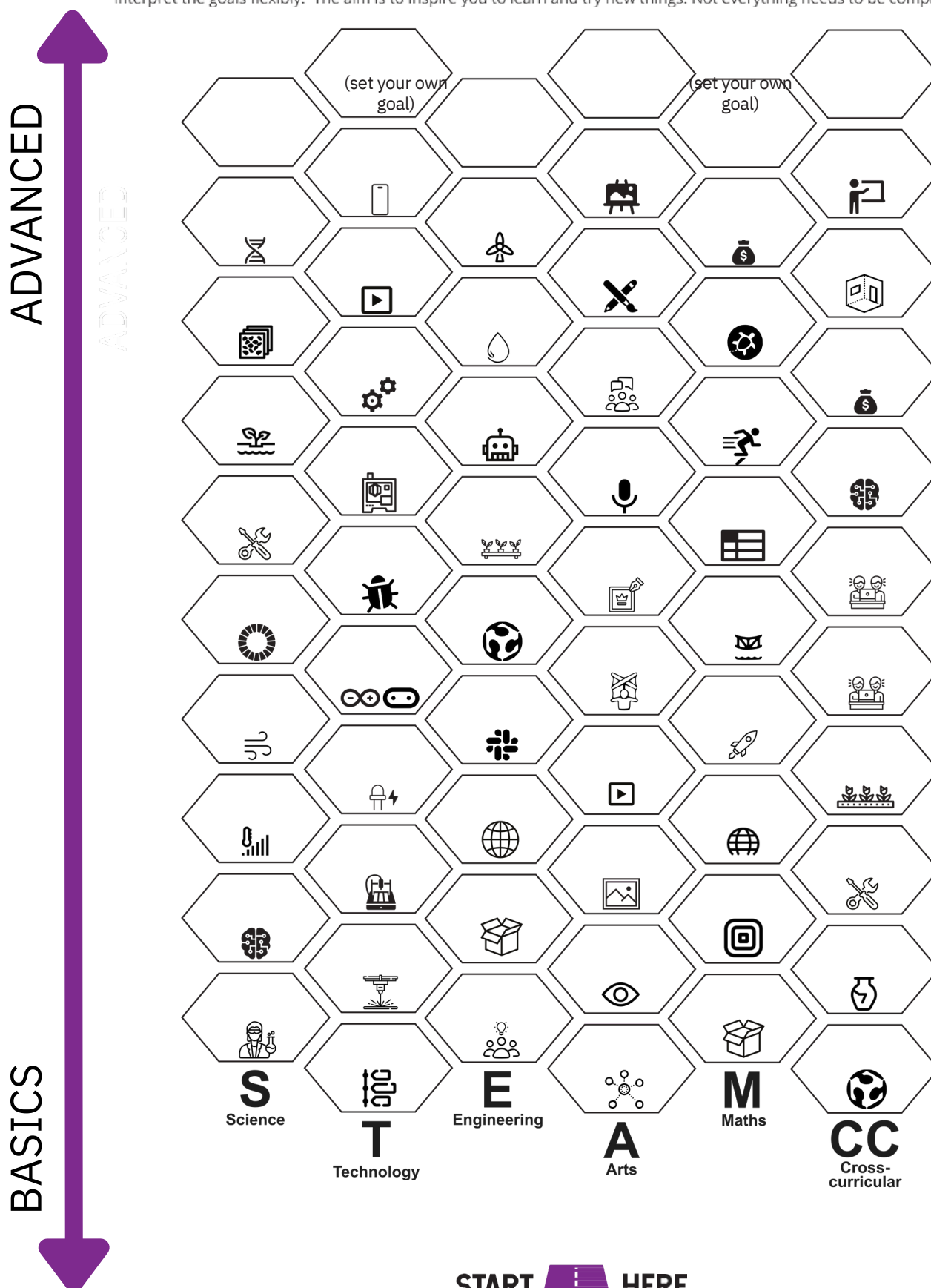
ADVANCED

BASICS

(set your own goal)

(set your own goal)

S — Science

T — Technology

E — Engineering

A — Arts

M — Maths

CC — Cross-curricular

1 tile = 1 point

START HERE

Name: _____