

# STEM Skills Activity

Students will participate in several STEM challenges in a fun and active way.

**SETUP:** Arrange desks (or tables) into 5 groups. If possible, move chairs away from desks.

Engineering


Math


Technology


Kanoodle


Science


**Goal:** Students will use teamwork, leadership and soft skills through STEM activities followed by discussion.

**Introduce yourself and briefly share your career/education background.**

- **Opening remarks:**
  - Let the students know that they will be participating in several STEM activities.
  - Ask the students if they know what STEM stands for (Science, Technology, Engineering and Math)
  - Discuss why STEM is so important. STEM jobs are in high demand, which means there are not enough workers to fill positions. Basic concept of supply and demand. Ask the students, “What do you think happens when you have a skill that is in high demand?” Pay rates go up.
  - Examples could be: the technology field where technology is changing so rapidly people don’t have time to be trained quickly enough; the medical field where we don’t have enough people going into specialized fields; the trades, such as electricians, plumbers, welders, and automotive technicians. We are in a situation where the average age of skilled trades workers is 45 years old, which leaves many positions in huge demand across the country. These positions can be careers that may require only a high school diploma while others may require certification or a four-year degree.

## Activity: STEM Stations

### Steps:

- Ensure that the students are evenly divided among the 5 groups of tables.
  - Each **group** gets **one** STEM Activities Score Card sheet.
- Each group will have 3 1/2 minutes to complete each activity at each of the five stations.
- Tell the students that they will work on 5 different STEM activities, one at a time, rotating every 3 ½ minutes.
- Briefly explain the activity at each table.
- Inform the students that you will be keeping the time and when they hear the bell, they should stop and you will score their answer sheets. They will then move to the next station, taking their answer sheet with them.
- Once they have all moved to the 2<sup>nd</sup> station, say GO and repeat the same process.
  - Students should work together as a team and move as a group from table to table.
  - Instructions for each activity are on the back of the Activity card on each table, in case the students need them for additional reference.
- Once the students have completed all 5 activities, you will check the score sheets and determine which group has the winning score.
- **Description of each activity:**
  - **Math activity:** Students will solve each of the 6 math card problems. Cards should be face down on the table. Each student will take a turn by picking a card and solving the problem on it. If they need help, they can ask other team members to help. They are a team working together to complete all 6 cards in 3 ½ minutes. They should record each answer on the score card. They will receive **1 point for each correct answer.**
  - **Engineering activity** - Students must build a cantilever (a structure that extends horizontally and is supported at only one end) using the materials provided. The cantilever must extend 12 inches from the end of the table. The judge measures with the ruler provided and the ruler cannot be used in the cantilever construction. **If the team completes this challenge in the allotted time, they will receive 5 points on their answer sheet.**
  - **Technology activity** – Students must correctly program the mouse's movements to finish the maze and eat the cheese. The answer key has the steps shown in the correct order. Note: They **will** use all the programming squares. **If the team completes the challenge within the allotted time, they will receive 5 points on their answer sheet.**
  - **Science Activity:** The students will use the diagram and construct the snap together circuit pieces to make the blue light blink, the two fans spin and the bulb illuminate. **If the team completes the challenge (all 4 items) within the allotted time, they will receive 5 points on their answer sheet.**

- **Kanoodle Activity** – Referring to the 6 puzzles shown on the inside of the lid, each student will take a turn trying to complete one of the puzzles. Be sure students follow the instructions on the bottom of the puzzle card. If a student is struggling to complete a puzzle it is OK to allow other students to help. **Each completed puzzle is worth one point, for a total of 6 possible points.**

\*Note: You may ask a teacher to help with the Kanoodle station to ensure that the students are following the directions for the building of the puzzles.

### **RECAP/TALKING POINTS (as time permits):**

- What was required to be successful at the different stations?
  - Possible answers:
    - Teamwork
    - Leadership
    - Communication
    - Conflict Resolution
- How does this relate to future workplace dynamics?
  - Possible answers
    - You need all of these when working in any group, including work groups.
    - Leaders have a lot of the same attributes. Many times a leader isn't chosen, but due to the attributes displayed, a person develops into the leader.
    - Teamwork is important because everyone has different thoughts and strengths, and working together builds great results.
- Have you ever heard this statement: "Talent wins games, but teamwork and intelligence win championships."? --*Michael Jordan*
  - How can this relate to work/careers or life in general?