

Brief Classroom Activities for MIT BLOSSOMS STEM Video Lesson

Classroom Activity 1: Kate

Prompt:

Write down 5 words that you associate with the word “Scientist” and 5 words you associate with the word “Engineer.” Then with your neighbor, take turns sharing your words.

Goal: Students recognize the preconceived labels they may have for scientists and engineers.

Outline	Details
<p>STEM stereotype awareness</p> <p>Teacher Questions:</p> <p>What common words or images have we heard from our paired neighbors? What impact do they have on you? How do you think these stereotypes might impact your decisions about careers and about your future?</p>	<ul style="list-style-type: none">• Once the pairs are done sharing their stereotypes, have the whole class share their stereotypes and select about 5 of the most common ones.• Students share their images of scientists and engineers, which helps them become aware of stereotypes and begin to realize that these are not true stereotypes.• Through the suggested Teacher Questions, students may start to see that when we stereotype, we limit our own ability to choose a future in a great career like a STEM field. By removing our limiting preconceptions about people and professions, we see that all types of people can do great work in STEM.

Classroom Activity 2: Kate

Prompt: With a partner, share a challenge or experience in your life that first seemed intimidating to you, but that you were eventually able to do. How did that make you feel?

Goal: Students connect previous challenges that they faced with the positive feelings they experienced by taking on the challenge rather than avoiding it.

Outline	Details
<p>How it felt to overcome a challenging, overwhelming experience</p> <p>Teacher Questions:</p> <p>Once you share your challenging, intimidating</p>	<ul style="list-style-type: none">• Once students talk to their partners on something intimidating, have them pause to think about when they had these experiences.• Class discussion: This can be a sensitive discussion so it's recommended to have

<p>experience, reflect on how it made you feel when you did face up to that challenge? Be ready to share out with the rest of the class.</p> <p>If you prefer, you can share an experience that was perhaps not fully successful, but did build up your confidence!</p>	<p>volunteers share.</p> <ul style="list-style-type: none"> ● Examples might be “I was worried about what the other person thought, and realized that even the worst case scenario was nothing to worry about.” ● Connect students’ powerful adjectives about how it felt to overcome the challenge. Help them connect the positive effect that doing something difficult has on building their self-confidence.
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Classroom Activity 3: Yunpeng

Prompt: Select the category below that you feel is one of your strongest skills:

- Adaptable
- Creative/Innovative
- Critical Thinker
- Logical
- Reflective/Writer
- Collaborative

Goal: Students see that their skills are well aligned to STEM. They start to open up the STEM field as a choice as it relates to their skills.

Outline	Details
<p>What is your strong skill?</p> <p>Teacher Question: Are you aware of your own skills? Either in a classroom, in the hallways, on a sports field, at home during dinner, or over a conversation on social media, which of the listed skills do you think you are strong in?</p> <p>Teacher may need to briefly explain each category.</p> <p>Teacher Question: Share an example of your skill in action. What did it look like? Have as many people in your group share their stories.</p>	<ul style="list-style-type: none"> ● Use open space in your room to group students according to each category: <ul style="list-style-type: none"> ○ Adaptable ○ Creative/Innovative ○ Critical Thinker ○ Logical ○ Reflective/Writer ○ Collaborative ● Students group together and share a story of their skill in action. ● With whole class, the teacher shares an example for each skill listed below. <ul style="list-style-type: none"> ○ Adaptable: STEM requires constant shifting and changing to deal with new challenges. ○ Creative: STEM is great for those who look outside the box, who have even quirky ideas. ○ Critical thinker: Providing evidence and

- concrete results is most important in STEM.
- **Logical**: STEM requires bridging data to other parts of data in a logical form.
- **Reflective/Writer**: Gathering information is one part, but writing it up clearly for audiences to understand is extremely important.
- **Collaborative**: All contributed work is part of a team's effort. Effective teams working well together are the most successful in STEM.
- Let students know that if they found themselves in even one of these categories, then they have one or more crucial skills necessary to excel in STEM.

Classroom Activity 4: Susy

Prompt:

Write down 5-10 statements, starting with the words, "I am..."

Then write down 5-10 statements, starting with the words, "I will be..."

Get ready to share with your group!

Goal: Students reflect and become aware of their self-perceptions (limits and abilities). They then begin to see how they can work with others as resources to get to their future goals. Being aware of our own self-perceptions and the hopes of our future selves make us aware of our own self-limits. Working with others helps us see how we can remove limits and get to where our passion and goals live.

Outline	Details
<p>Who you are today? Who you are tomorrow? How do we connect?</p> <p><u>Teacher Questions:</u></p> <p>How can you help your teammates reach their goals? How can your teammates help you reach your goals?</p>	<ul style="list-style-type: none"> ● Students write down 5-10 statements on who they believe they are today, "I am ____." ● They then write down 5-10 statements on who they believe they will be in a few years or in many years, "I will be ____." ● Students break out into groups of 3-4 and share statements with each other. Talk about how they might help each other reach their goals. ● Elaborate on the importance to help one another, as every part of a dream or even a task requires someone else's support, contribution, idea, or input.

Classroom Activity 5: Greg

Prompt: You are going to have a chance to learn about some of the potential challenges that an engineering startup faces and some of the potential solutions to address them.

Goal: Students are introduced to the many challenges involved in the early stages of a startup company and asked to come up with some solutions.

Outline	Details
<p>Find the solutions</p> <p>Teacher Question: Your class just invented the latest smartwatch with built-in artificial intelligence capabilities to help people be more productive throughout their day. Your team is now focused on developing and selling your new product, and each of you needs to figure out potential solutions to the challenges your business will face.</p> <p>Each team is assigned to be a specific department in the new smart watch startup. I will hand out to each team your department name and the challenges your department will face. Read the challenges and discuss with your team about how to address them.</p> <p>Teacher Question: How did your solutions compare to Greg’s suggested solutions handed out? Each team gets a chance to share how their solutions compared with the solutions handed out and what they learned from this activity.</p>	<ul style="list-style-type: none">• Teacher prints and distributes accompanying Department and Challenge cards to student teams.• Teams discuss the challenges and how they would address and solve them.• After teams discuss their solutions, teacher distributes Greg’s proposed Solution cards. Teams compare and contrast their solutions with Greg’s solutions.• Emphasize that when starting a business, there’s not one cookie cutter way to approach it. Just because Greg’s solutions were proposed, does not always mean they will guarantee success. To reach success, we often must try different strategies until finally reaching the right one that resolves the challenge.