Behind the Scenes Tool

STEAM Roles & Identities

Ongoing

Overview

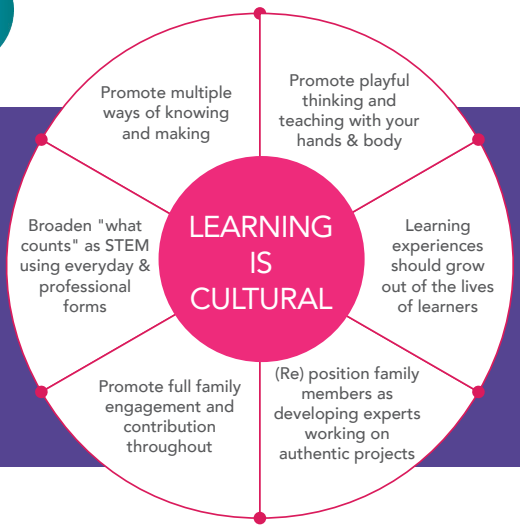
As a STEAM facilitator, having an awareness of some of the STEAM roles and identities that are possible in your program will help you name them in action. This is very powerful. Following your lead, this can lay the foundation for families to make connections between what they are doing in the program and everyday life. It also makes clear that there is a lot of overlap between these roles!

Why?

Taking time to name these roles can support STEAM-identity development in families. It highlights skills that are found in multiple types of roles, which opens moments for learners to identify with unfamiliar roles. They can begin to see qualities that they already possess as being applicable to areas where they feel they have little or no experience. On top of that, it emphasizes that these roles are values-driven and not only skills-based!

This practice:

- Provides flexible role definitions for many contexts
- Values the varied ways that STEAM roles manifest
- Demonstrates how interchangeable many of these skills and behaviors are across roles
- Invites families to see these identities in each other
- Connects to family-specific routines & behaviors



Family Sketch

In an aside conversation during the program, one mother listed all the ways she thought her daughter would make a good engineer. She told her that she's a passionate artist who loves to build things and help people. In this instance, the mom expertly connected her daughter's interests and identities with STEAM roles in a very relevant way.

Step-by-step

1. Familiarize yourself with potential STEAM Roles & Identities and pay particular attention to the overlap across all the roles we've included here. Use these terms as a start to describe and encourage families in your program.

2. Think broadly about what you know about STEAM roles, and look for ways to describe them. When you are talking with families, share the connections you see and invite them to look for connections as well.

   For instance, both Artists and Roboticists are visionaries—projecting what they believe are possibilities by tinkering with different materials. Storytellers and Computer Scientists are precise with their language. Every role benefits from exploring and trying new things!

   Here's an example phrase: "I noticed that you are testing out different materials for your project. That's exactly what a roboticist does when they build the hardware for their computer. That's also exactly what an artist does when they experiment with different paints to use!"

3. As you engage with families, try to notice these behaviors and name them. It will get easier the more you practice. Our hope is that these conversations can help expand fixed ideas about who does STEAM and how. Families begin to take away an understanding that these skills are highly contextual and flexible.

What worked for us

We used these roles as badges, and handed out little buttons to each participant based on what roles they thought they achieved each day. This worked with varying degrees of success!

In order to create space for family reflection, we paired this practice with the "Questioning Strategies" tool.

It was always encouraged for families to call out these roles when they saw them in each other, and award one another badges.

Other ideas

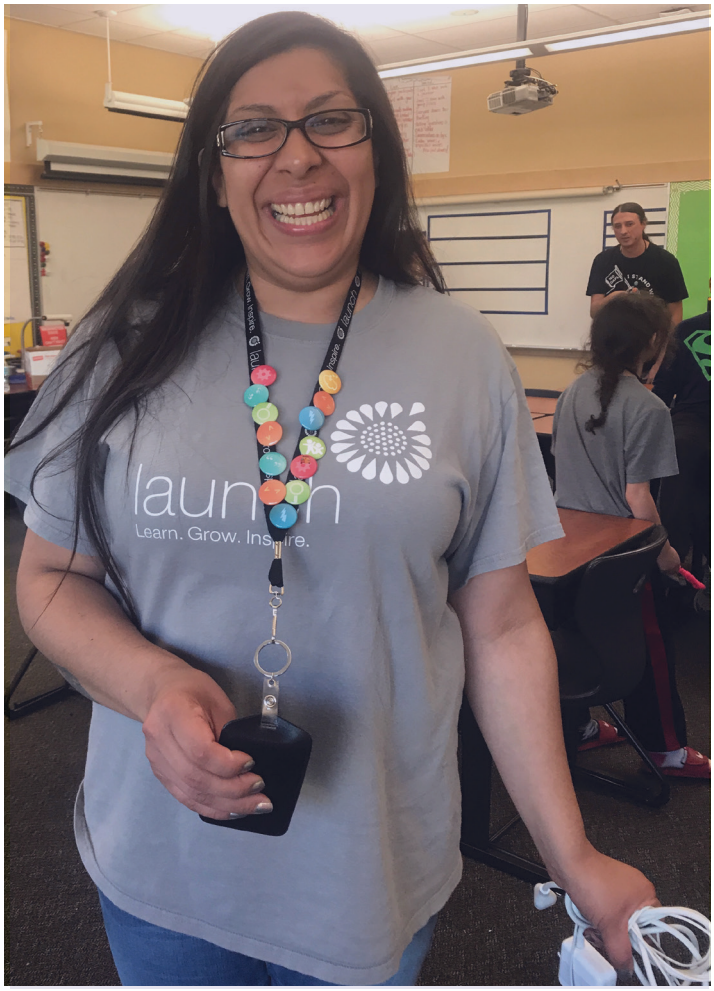
How can this practice fit into your setting?

Think about what roles you want to model and reinforce in your program. What skills and practices would you like to add that are not listed here?

Put up large posters or tracking sheets where families can place stickers to indicate each of the roles they did that day.

The most important part of this is taking time to verbalize the roles and encourage families when you seen them in action. You don't need any materials to do this!

Consider how you want to do this: are you reinforcing these skills in the moment, or saving them for a family reflection at the end?



What is a...

Roboticist
You experiment by putting together a bunch of parts to build something useful, and program what you've built to do something on its own.

Computer Scientist
You use careful logic and language to create an algorithm that can be interpreted by a computer. You test and debug when there are problems.

Artist
You creatively put together and represent an idea. You are a problem solver and you look for inventive ways to express your ideas.

Researcher
You observe, document, and reflect on your observations. You collect data and analyze your data in way that can be understood by others.

Storyteller
You notice interesting moments in life and places and use intentional language to share with others. You make connections and help people to understand.

Electrical Engineer
You use your understanding of electricity and circuits to plan and build electrical connections in ways that help us every day. You test and troubleshoot.

More tools like these available on techtales.online
Robotics Backpacks for Family Learning
NSF DRL - 1516562

STEAM Roles & Identities

Roboticist

Computer Scientist

Artist

Researcher

Storyteller

Electrical Engineer

Curious | Creative | Innovative | Imaginative | Resourceful | Precise | Persistent

Tries new things

Makes mistakes & learns from them

Asks questions

Makes connections

Plays with materials	Makes predictions	Plays with materials	Observes closely	Observes closely	Observes closely
Designs iteratively	Designs iteratively	Designs iteratively	Shares	Shares	Designs iteratively
Finds solutions	Finds solutions	Observes closely	Listens attentively	Listens attentively	Finds solutions
Works carefully	Empathizes	Empathizes	Empathizes	Empathizes	Works carefully
Builds creatively	Tests & Debugs	Thinks expansively	Develops plans	Thinks expansively	Develops plans
Pays attention to detail	Pays attention to detail	Imagines different outcomes	Reflects	Imagines different outcomes	Pays attention to detail