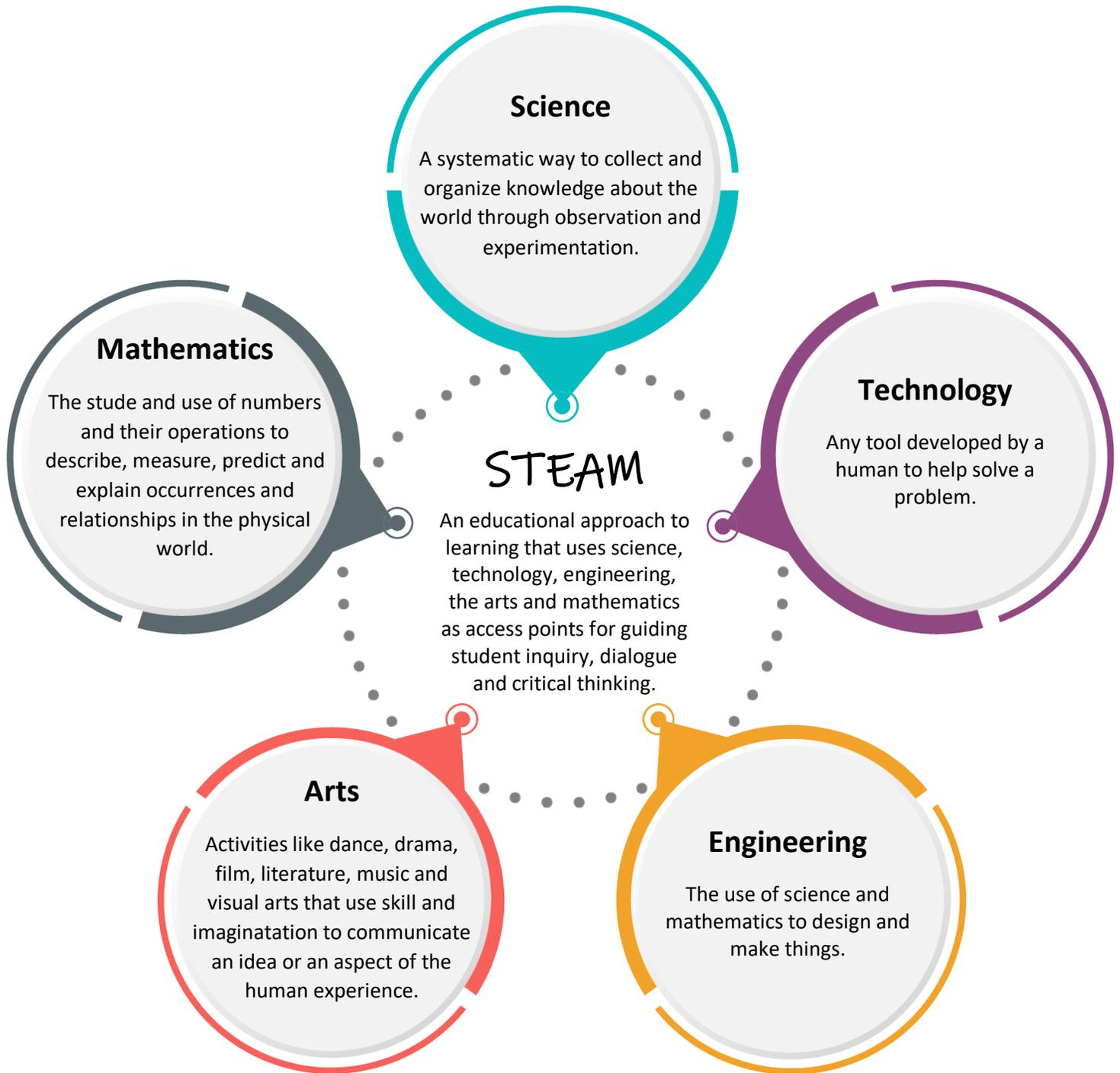




STEAM at a Glance

STEAM education projects and activities may include some or all of the five STEAM disciplines.





STEAM at a Glance

Four Characteristics of STEAM

<p>Creative Tackles a real-world challenge or creates something that has value or meaning.</p>	<p>Interdisciplinary Includes content and skills from more than one field of knowledge.</p>	<p>Experiential Provides opportunities for active exploration (for example, through a makerspace).</p>	<p>Inquiry Based Follows the design thinking process.</p>
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Use of **design thinking + makerspace** is one of many possible models for STEAM education.

Design thinking is a 5-step problem-solving process used by engineers and inventors:

1. **Empathize** – Conduct research to develop a deep understanding of the challenge you’re addressing and the audience for your solution.
2. **Define** – Clearly define and articulate the problem to be solved.
3. **Ideate** – Brainstorm a bunch of creative ideas, then narrow down a few to test.
4. **Prototype** – Build a real-life representation (prototype) to test part or all of the solution.
5. **Test** – Engage in short-cycle testing of the prototype, and use feedback and research to improve the product.

A **makerspace** is a collaborative environment designed to allow students to make, create, learn, invent and share.

- **Making** is a grassroots movement focused on experiential learning that inspires young people to be creative, imaginative and inventive. At the heart of making are hands-on experiences that are student driven, invite creative exploration of materials, and harness children’s inherent love of play.
- **Makers:** These are the students who are working in the makerspace and performing the act of “making.” You, as the facilitator, are also a maker! You’re making a meaningful learning opportunity for your students.



Facilitators of the “**design thinking + makerspace**” STEAM education model do six tasks:

1. Consider STEAM Education Variations and Characteristics
2. Activate the Power of Design Thinking and Makerspaces
3. Plan to Mitigate Risks
4. Choose Your Mission and Implement Your STEAM Activity
5. Ensure a Smooth Link to Program Goals by Implementing With Fidelity
6. Assess, Reflect and Celebrate

Download the Y4Y **STEAM Implementation Checklist** for more about the six tasks.

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