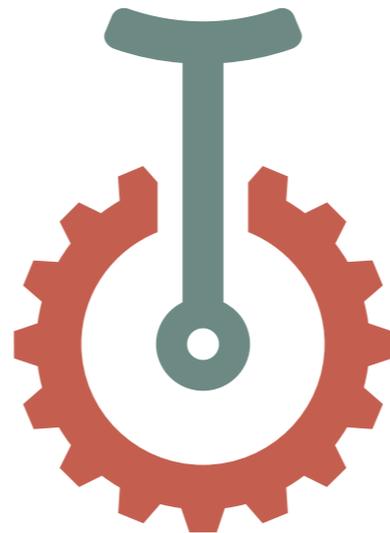


STEAM VS. STEM: THE GENDER GAP



TWO BIT CIRCUS

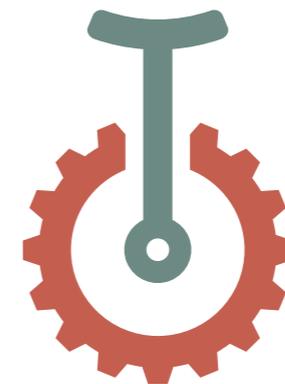
Although general awareness of the acronym STEM - science, technology, engineering, math - has increased in recent years, there has been debate around a few more notable STEM topics, such as the awareness of STEM programs, activities, and toys, and the gender gap in STEM. To explore these topics further Two Bit Circus surveyed 500 parents with kids between the ages of 6-14 years-old about their child's interest in STEM.

Findings reveal a strong lack of awareness of STEM extracurricular activities and toys. In fact, **nearly half of parents (47%) are not entirely familiar with STEM toys.** Data also uncovered a significant gender gap that exists in STEM, with most male children expressing interest in STEM topics outside of the classroom, while their female peers do not carry the same interest in those activities externally.

As a company that wants to inspire young thinkers through curiosity and innovation, our main goal is to encourage every child to embrace STEM. We have found that STEAM is a great way to welcome all young students of both genders, as STEAM incorporates the additional (and critical) subject matter of art. Survey insights confirmed that art is, in fact, the way to capture girls' interest as the entry point to STEM.

IN THE FOLLOWING PAGES WE WILL EXPLORE:

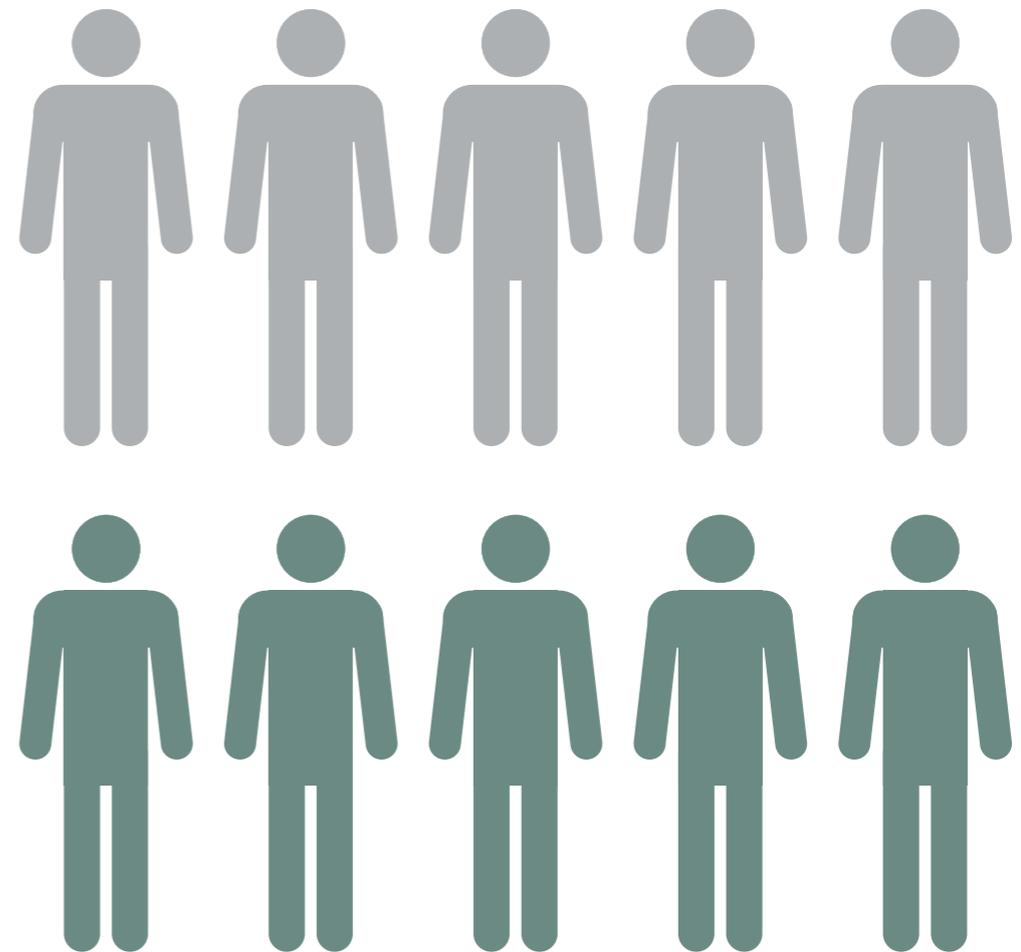
- ★ The lack of awareness around STEM
- ★ The gender gap of STEM
- ★ The ability for Art to be an entry point to STEM



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THE LACK OF AWARENESS AROUND STEM

The term STEM is popular especially in the educational space. However, many parents are not familiar with the benefits of STEM as a whole. Sure, parents are familiar with the subject matter that collectively describes this acronym, but the lack of awareness around extracurricular activities and toys in this area is somewhat alarming.

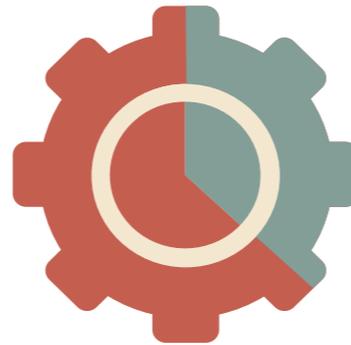


Nearly half (**47%**) of parents are not familiar with STEM/STEAM toys

STEM/STEAM IN SCHOOL AND AT PLAY



62% of parents say that their child **never** participates in STEM/STEAM extracurricular activities **outside of school**



37% of parents are **not familiar** with STEM/STEAM extracurricular activities **outside of school**



2 out of 3 parents say that their child **does not have** STEM/STEAM toys



WHAT WE LEARNED:

Although parents are familiar with the subjects that combine together to create STEM - science, technology, engineering, and mathematics - few parents are aware of extracurricular activities and toys that help reinforce these topics.

Inspiration and curiosity doesn't vanish when school is over, so why aren't more parents aware of after school activities that foster STEM/STEAM learning? For the broader STEM/STEAM movement, this general lack of awareness and engagement in STEM/STEAM-based activities points to a clear awareness problem, and a need for further exploration on the issue.

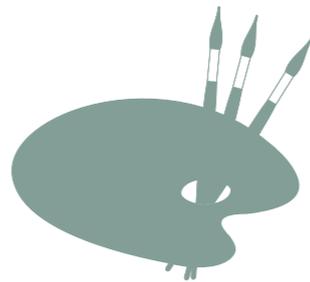


THE GENDER GAP IN STEM

The general awareness problem in STEM/STEAM trickles down further to show a clear gender gap between STEM and STEAM subject matter, topics and activities in and out of school.

While parents of both male and female children equally report that their child's favorite STEAM subject in school is either **math** (26% for both genders) or **science** (30% for both genders), the gender gap between the reports from parents regarding art and technology is **extreme**.

STEAM: THE INTEREST BREAKDOWN



35% of parents of girls report art as their favorite subject, but only 13% of parents of boys report art as their favorite subject in school

TECHNOLOGY

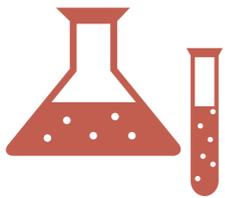


Compare this with technology where only 7% of parents of girls report technology as their child's favorite subject compared with 23% of parents of boys reporting technology as their child's favorite subject in school

EQUAL PLAYING FIELD? IN SCHOOL VERSUS OUTSIDE OF SCHOOL

For many students, their interests at school vary greatly from their interests outside of school. This is no surprise. However, it is hard to ignore the difference between each of the STEM/STEAM subjects.

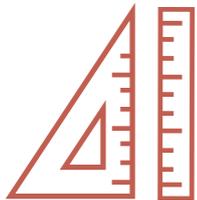
SCIENCE



TECHNOLOGY



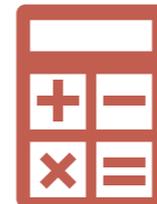
ENGINEERING

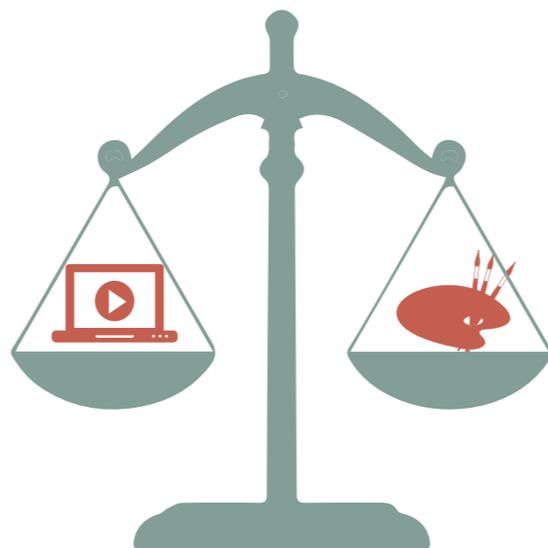


ART



MATHEMATICS



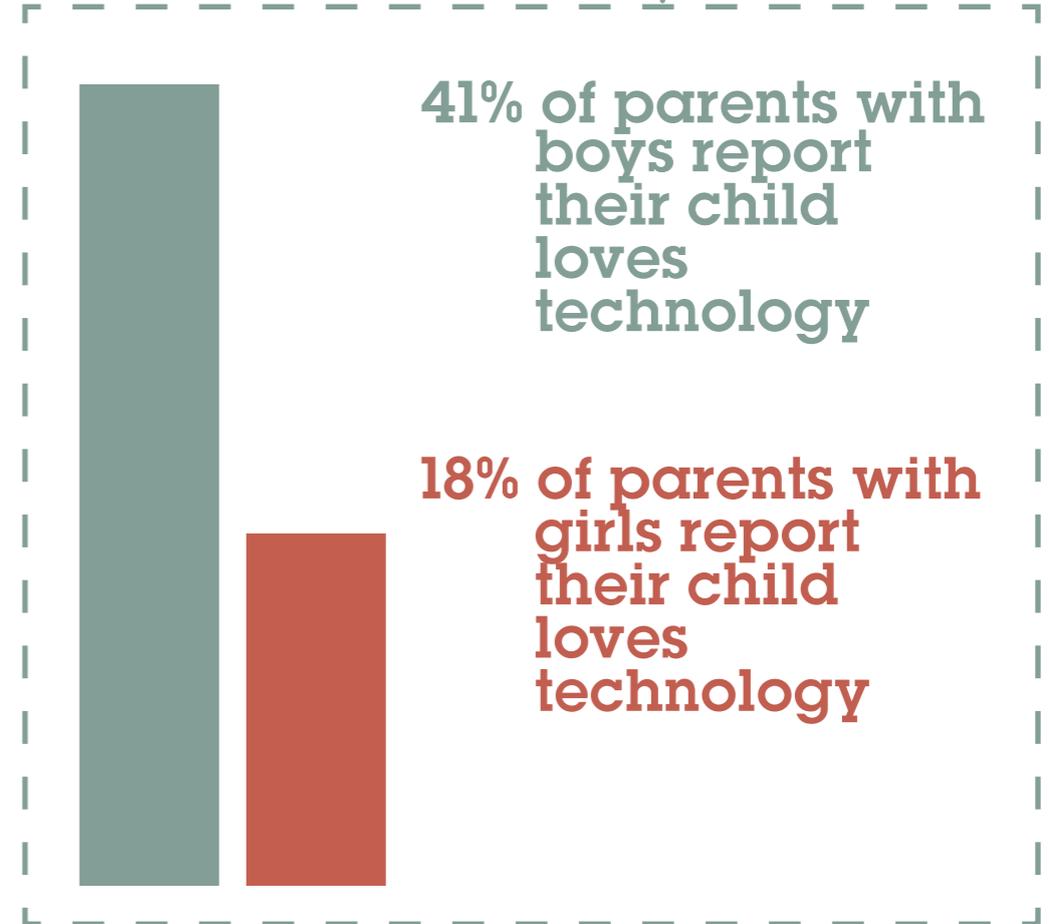
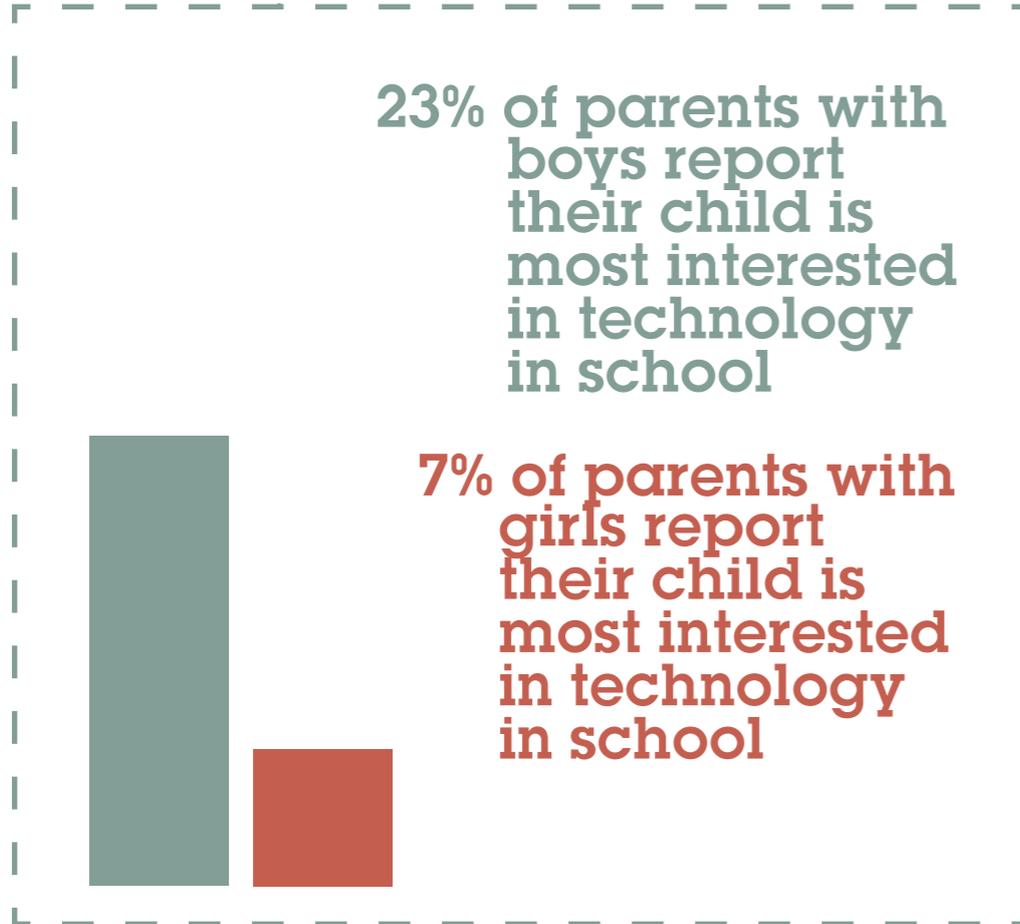


THE GREAT DIVIDE: ART & TECHNOLOGY

The STEM/STEAM interest shows most clearly when you look at it from a gender perspective. Looking at it from both inside and outside of school, art weighs in heavily with girls and technology tips the scales for boys.



TECHNOLOGY/ COMPUTING





ART

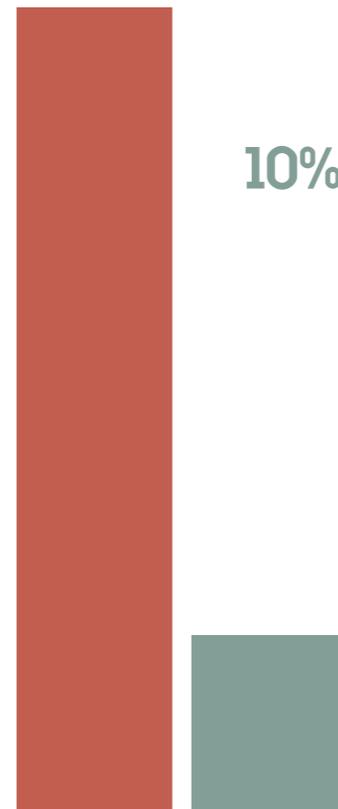
**35% daughters
favorite subject**

**13% sons favorite
subject**



**45% of daughters show
most interest out of
school**

**10% of sons show most
interest out of
school**



WHAT WE LEARNED:

This shows us that technology/art are the battleground subjects for exposing the gender gap in STEM/STEAM. There is a surprising gender neutrality balance in Science/Math interests from both both boys and girls in school.

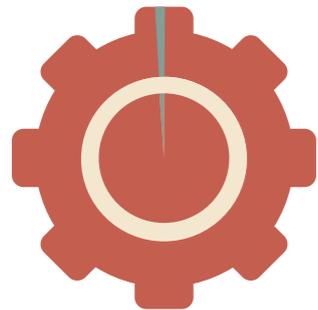
How are these kids' interests not translating between educational interests in school which represent the "S" and the "M" in STEAM, and continuing on into what they enjoy doing for fun? (Girl scientist and mathematicians are not the stereotype!)

Yet, the gender difference between art and technology interests both inside and outside of school demonstrates where the STEM fallout for girls happens, pointing directly to the "A", or art."

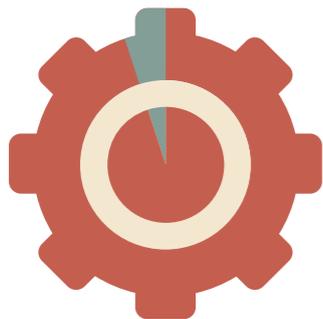
GETTING AN "A": ART IS THE DOOR TO STEM FOR GIRLS

With the more newly developed acronym, STEAM, young girls are provided with the opportunity to explore STEM activities through an artistic, creative gateway they are more familiar with and enjoy doing both in and outside of school - art.

GETTING CREATIVE WITH THE "ART" OF STEM



99% of parents with daughters say their child decides to do some form of arts & crafts on their own

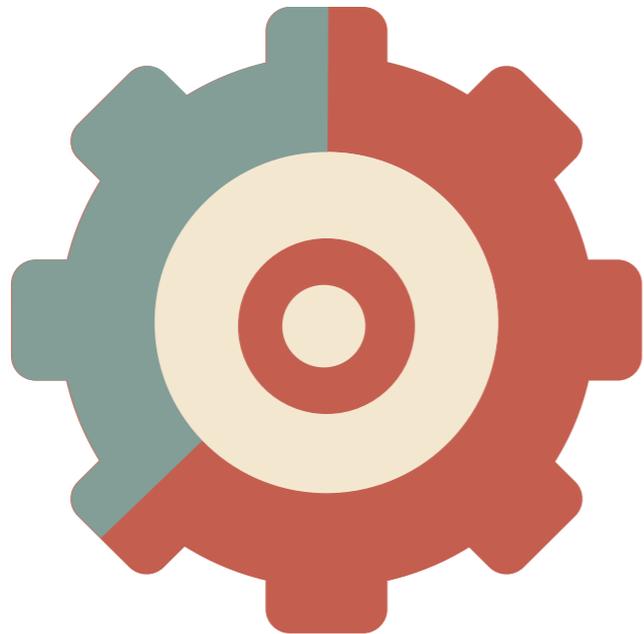


95% of parents with daughters agree their child enjoys playing with toys that allow them to be artistic and creative



9 out of 10 parents with daughters agree that their child enjoys participating in art lessons in school

GIRLS EMBRACE ART



Parents with daughters are **63%** more likely than parents with sons to state that art is their child's



Parents with daughters are **3.5x** more likely than parents with sons to report that their child shows the most interest in art outside of school



WHAT WE LEARNED:

Parents with daughters have confirmed through the data that art is the way to tap their daughter's interest, especially when coupled with STEM. Whether they are in school or outside of school, daughters are generally engaged by art programs and activities. By incorporating this subject into the already established STEM, the likelihood of girls expressing interest in these topics they are often uninterested in after leaving the classroom, increases. Art can serve as the gateway to STEM for girls.



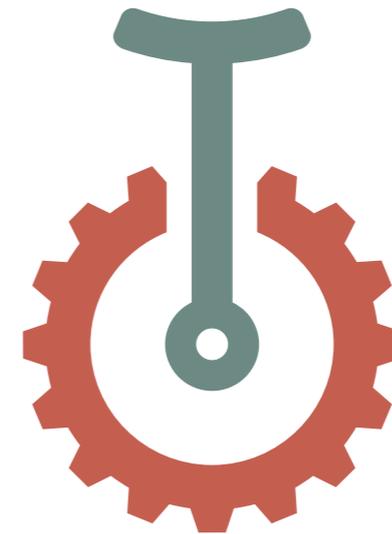
Exploring STEM and STEAM, we uncovered a huge awareness issue and a gender gap in interests and its possible impact on STEM engagement for girls. In order to engage girls in STEM, we need STEAM. Art must be a part of STEM both inside and outside of school. STEAM-based extracurricular activities and toys are needed, and in order to drive a gender balanced future of inspired learners and creative thinkers, **ART** has to be a part of the equation.

KEY TAKEAWAYS:

★ **LACK OF AWARENESS AROUND STEM** - Although the components of STEM, science, technology, engineering and math, are well known, and many are familiar with this recently developed term, awareness around STEM extracurricular activities and toys are extremely low.

★ **GENDER GAP IN STEM** - While we knew that technology has a gender gap, girls and boys are both equally interested in science and math in school. But while that awesome interest holds in school, it does not translate to extracurricular programs or home activities. These translations from school interests to extracurricular activities is bridged by the creative “a” for art.

★ **ART IS THE ENTRY POINT TO STEM FOR GIRLS** - The survey revealed that girls show a greater interest in art than most STEM subjects. In order to increase the amount of girls interested in STEM, we need to embrace the newly coined STEAM, which combines art with the STEM subject lineup.



TWO BIT CIRCUS

METHODOLOGY:

Two Bit Circus surveyed 500 parents with kids between the ages of 6-14 years old in October 2016. This survey was completed online and responses were random, voluntary and completely anonymous.