

FAMILY SCIENCE OBJECTIVES

Iridescent aims to help children and their parents develop the following changes in attitude and behavior through Family Science Courses:

1. *A persistent interest in science, engineering, technology and mathematics (STEM).*
2. *Ability to solve problems.* This skill would consist of being able to break a problem down into manageable chunks, transferring principles of the scientific method (as learned in the formal school curriculum) to real-world engineering problems and designing and redesigning.
3. *A persistent curiosity in the world around.* This would be represented by a desire to understand how and why the world works the way it does, to take things apart, to take “pleasure in finding things out” and finally to have the courage to step out of one’s comfort zone, to learn and to transfer learning to new situations [1].
4. *An increased interest in creating, designing, building and inventing.*
5. *Development of a growth mindset and increased persistence.* This would be represented by an understanding that failure is part of success, intelligence is not a fixed capacity and one can increase intelligence by working harder [2].
6. *Increased confidence in the ability to understand complex ideas.* Through Family Science Courses, engineers bring cutting-edge STEM topics and their real-world applications to families. Families get the opportunity to build relationships with the mentoring engineers while developing a deeper understanding of how the world works. This results in making STEM more accessible to the families as an interest, hobby or career.

References

1. Wertsch, J.V., *Vygotsky and the social formation of mind* 1985, Cambridge, Massachusetts: Harvard University Press.
2. Dweck, C., *Mindset: The new psychology of success.* 2007, New York: Ballantine Books. 288.

FAMILY SCIENCE SURVEY

1. Please draw a picture of yourself doing your favorite science-related activity. Give your picture a title and then write a sentence about the picture.

2b) Write the title of your picture: _____

2c) Finish the sentence. In this picture, I ... _____

2. How many times did you build, fix or take something apart in the past month?

None 1-2 times 2-5 times more than 5 times

3. How many science programs or science videos have you seen on the TV or on the computer in the past month?

None 1-2 2-5 5-10 more than 10

4. How many science books/articles have you read in the past month?

None 1-2 2-5 5-10 more than 10

5. When you do not understand a problem, do you ask a question to clarify your confusion?

Always Very Often Sometimes Rarely Never

6. If your toy or any appliance (such as lamp, toaster or vacuum cleaner) doesn't work, what are four steps you would take to make it work?

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7. *If my model/experiment keeps failing, but I keep trying to make it work, I will become smarter because of my experience.*

Please circle the response that best represents how you feel about the statement:

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree