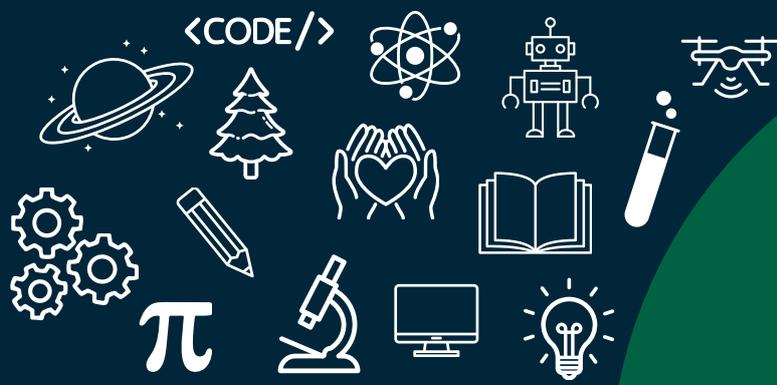


Utah 4-H



STEM



Utah Fat Quarter STEM CHALLENGE

The Utah 4-H “Fat Quarter” Design Challenge is a crossover STEM contest between engineering and textile production. This contest challenges you to create a design that fills a need and enter it into our design challenge.

What is a fat quarter?

A Fat Quarter is a piece of fabric cut 18” off the end of the bolt, and then cut in half on the fold. Four of these put together still make up 1 yard of fabric. Imagine a piece of paper cut into four equal horizontal strips compared to a piece cut once horizontally and once vertically to get four equal square-ish pieces. A fat quarter is usually 18” x 21” of fabric.

What is Engineering Design?

Engineering Design is a process followed to design technical solutions and prototypes. It is an iterative process, meaning a repetitive cycle of design, testing, and redesign until a solution is reached that meets the necessary needs.

1. Identify a Problem: what is the problem or need you are trying to solve with your design? How did you identify this need?
2. Research current products and constraints: what already exists to address the problem? What can you do to improve the current solution? What constraints do you have to work within (time, supplies, budget, etc.)?
3. Brainstorm possible solutions: think through all of the possibilities!
4. Select the most promising solution: what is going to work best?
5. Create your prototype using the most promising solution: build your prototype using all of the research you have done!
6. Test your design: does it work well? Does it meet the need you are addressing? Would you change anything in the design if you were to make it again?
7. Redesign and retest: the design can be changed and re-created as many times as needed until you have a solution or product you are satisfied with.

Contest Entry Requirements:

1. Register for the “Fat Quarter Challenge” in ZSuite by the end of March. A 4-H themed fat quarter of material will be mailed out on the Friday following your registration.
2. Determine a need that you want to fulfill using a creation made with your fat quarter. Needs can vary- you can make something to keep your turtle warm, or a coin purse to hold your prize winnings. The sky is the limit on creativity.
3. Design your project using the engineering design method above.
4. Deliver your entry to the county office by the deadline. Include a written statement answering the following questions:
 - a. What need was your project designed to meet?
 - b. What are some of the different solutions you considered?
 - c. What were the deciding factors in the design you chose?
 - d. How did you test your design?
 - e. Did you make any changes in the final design?
 - f. Did you create your own design or use a pattern that someone else created? If you used a pattern, did you change anything from the original pattern?
 - g. You may include pictures or patterns you used.

Entry rules:

1. Your design must utilize 85% of the fat quarter. If you choose to make something small, you can make more than one item to meet this requirement.
2. You may add other fabric and materials as needed. Other materials used are at the expense of the participant.
3. Your design can be sewn, glued stapled, etc. While many items will be sewn, sewing is not a requirement to enter.
4. Your final design needs to fit into a USPS large two-day mailer for submission.
5. Entries will be judged with others in the same age category. You may enter an original design or a design based on a pattern someone else created. Original designs will be judged separately from designs using an existing pattern.
6. Entries must be the work of one youth. Adult leaders may demonstrate a skill and help junior-age youth with equipment where safety is a concern, but the project should be the work of the youth.
7. Group entries may be submitted by groups (clubs, teen councils etc.) An example of a group entry would be a small quilt created by a club or teen council. Group entries must specify the role of each group member/mentor. Group entries will be judged as a separate category.

Youth must register on ZSuite to participate. Entries will be submitted via ZSuite.

At the state level, 4-H ribbons and prizes will be awarded to the top projects in each category by age division. Youth may enter more than one medium per category, but state prizes will be limited to one per person and will differ for each division and category.

ELIGIBILITY

1. Participants must be 4-H members currently enrolled and have an “active” status in ZSuite prior to entry.
2. All entries must have been completed within the past 12 months.
3. Age Divisions: age divisions are determined by a participant’s grade as of September 1st and are as follows:
 - a. Junior: Grades 3, 4, or 5 *Must be at least 8 years old.
 - b. Intermediate: grades 6, 7, or 8.
 - c. Senior: grades 9, 10, 11, or 12.
 - d. Participant entries will be judged using standard judging rules and will be eligible to earn a blue, red or white ribbon. If sufficient entries are received, a “Best of Show” entry will be chosen in each age category. The senior “Best of Show” winner will be eligible to receive a State Contest Winner jacket. Group entries should be submitted under the age category of the oldest member (excluding mentors).
4. Eligibility of Entries: all entries must be the work of the participating 4-H member.
5. Original Work of 4-H Member: entry must be the original work of the 4-H member.
6. Display and Future Rights Use Rights: by submitting an entry to the contest, the 4-H member grants permission to Utah 4-H and USU Extension the use, and rights associated with the use of the photographic likeness, in promotional publications, and other media, without compensation. Certain entries may be used for 4-H program and marketing uses.

8. Fat Quarter Judging Rubric

Name:		Category: Kit Original		Blue: 75-100pts	Red: 60-74pts	White: 0-59pts
Junior: 3-5th Grade	Intermediate: 6-8th Grade	Senior: 9-12th Grade				
Content	Reflection Paragraph	Pattern	Creativity	Mastery of Medium	Complexity	Total
Description	Summarizes project and answers at least one question on Engineering Design	Final product follows pattern created by youth or provided in kit. Adjustments to kits are documented on the pattern and in reflection paragraph.	Design is original or a modified pattern and reflected in the patterns provided with the entry.	Design is well constructed following standards for construction medium.	Complexity of design appropriate for age division	
Points Possible	25 pts	25 pts	25 pts	15 pts	10 pts	100 pts
Points Awarded						
Judge's Comments						



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