



# 2024 UMass 4-H Annual STEAM Festival

We will have several classes for you to enter your 2024 STEM Challenge “Power Protector” projects in. Grab those pictures and write a description to enter your creations. Note that some entries have a video requirement. A FEW Ideas:

- The 2024 Shoebox Float theme is "MY Super Power"
- Enter your Hideout Designs
- Make your designs into a 3-D model
- Create a gadget for a superhero or Cosplay costume
- Upcycle something you own
- Create a Scratch superhero game or Environmental PSA



Save the Date and join us for the Awards Ceremony on PI Day March 14<sup>th</sup>, 2024 at 7pm!

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# UMass 4-H STEAM Festival



## GENERAL RULES:



Exhibitors must be enrolled and in good standing in the Massachusetts 4-H Program.  
All entries must have been completed after the previous STEAM Festival.

**AGE REQUIREMENTS** - No child under 5 years old as of January 1 is allowed to exhibit.

- **Cloverbud** - Youth 5 to 7 years old as of January 1 will enter non-judgement clinics or classes with the same ribbon presented.
- **Junior** - Youth 8 to 13 yr. old as of January 1
- **Senior** - Youth 14 to 18 yr. old as of January 1

### **Rules and Instructions**

- Cloverbuds may enter any department and class and will receive comments.
  - Juniors and Seniors may enter any department and class and will be judged by age group in each department.
  - Each exhibitor may enter each class only once, with the exception of miscellaneous.
  - Exhibitors may enter any department whether work is a result of a 4-H project or another project.
  - Work must have been completed in the current 4-H year.
  - Ribbons are awarded based on quality and judges' decisions are final.
  - Videos should be uploaded to YouTube or Facebook and link provided where indicated.
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- **ELIGIBILITY:** This festival is open to **all youth** enrolled in the Massachusetts 4-H Program between the ages of 5 and 18 years as of January 1. 4-H is committed to serving the best interests of youth. Research in youth development indicates that young children under age 8 should not be in competitive situations. This 4-H STEAM Festival will follow the guidelines developed for Massachusetts in regard to Cloverbuds (youth aged 5 to 7 years) in competition.
  - **SYSTEM OF JUDGING:** The Danish system of judging will be used. Cloverbuds will receive a special Cloverbud ribbon. No premiums will be paid. Superintendents and judges reserve the right to reject any and all exhibits that are not on the premium list or are of undesirable quality. The judge's decision is final.

### **TO ENTER**

- You will enter your exhibits in Fair Entry. The Link is:  
<http://www.fairentry.com> The system will open for entries in February and will be announced and close on March 2. Click "Find Your Fair".
  - Filter by your state, click Search, and then click on the correct fair.
  - Sign in with your 4-H Online sign in and password. You can also create a Fair Entry account to sign in.
1. You will need to upload the required photos and/or video link to the Fair Entry website so have those ready. (Helpful hint: rename pictures to child/category/view. Ex: Sam\_quilt\_closeup.)
  2. Your entry will be judged over the next few weeks and you will be able to access your results after March 14<sup>th</sup>.

**READ REQUIREMENTS CAREFULLY**

## **Class List Descriptions**

### **Science Department**

Greenhouse: Show us your set up for starting seeds indoors or a greenhouse you designed.

Design: (Garden or Hideout) In the design include its measurement and the types of crops/flowers for garden or purpose of rooms/special features.

Science Experiment: Use the scientific method to design and conduct an experiment following safety and ethical guidelines.

Space Project: Submit your projects from Winter Workshops and STEM Challenge such as: rover, straw rocket, parachute or other project that relates to space. It can also include astro-poetry and images from telescopes.

Science Miscellaneous: Here is a place to put your projects that do not fit in the above classes to show us what you are doing and it could be a new class next year.

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### **Technology Department**

Scratch-coded game or app: What will you create?

Webpage design: Submit a webpage you have created using HTML code or designed using a platform like Drupal.

Hackathon: Using Scratch, try your hand at "Insight to Mars," part of the 2021 STEM Challenge.

<https://4-h.org/programs/stem-challenge/mars-base-camp/insight-from-mars-activity/>

3-D Printed design: any object you designed and made using a 3D printer. One of the most common platforms to use is Tinkercad. Here's a video to learn more.

<https://www.youtube.com/watch?v=sh4o9k599pQ>

Video: They can be demonstrations, stop animation, promotional or another genre. Please include title, 4-H Clover, MA 4-H and credits. Short PSA Video should be under 2 minutes, demonstration should be no longer than 5 minutes. Sample storyboard and resources at:

<https://ag.umass.edu/mass4h/programs/science-engineering-technology/movie-making>

Robot – electronic non-kit:

Technology Miscellaneous: Here is a place to put your projects that do not fit in the above classes to show us what you are doing, and it could be a new class next year.

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### **Engineering Department**

Rube Goldberg: Named after American cartoonist [Rube Goldberg](#), it is a machine intentionally designed to perform a simple task in an indirect and overly complicated way. Usually these machines consist of a series of simple, unrelated devices; the action of each triggers the initiation of the next, eventually resulting in achieving a stated goal.” (Wikipedia definition.)

<https://www.youtube.com/watch?v=V8VFTKZHrk> example of some Rube Goldberg elements

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Cardboard Arcade: A working arcade game created by you using cardboard and mainly recycled materials. Must include rules and instructions as to how to play the game. (Caine's cardboard arcade can also provide you with some inspiration) <https://www.facebook.com/cainesarcade/videos/caines-arcade/10150783700975056/>

Gadget: Create a gadget that could be useful to someone or a superhero.

Catapult/Trebuchet: Using a kit or not, create a working catapult.

Robot: non-electronic (indicate kit or non-kit):

Lego Structure: Create a building, monument, bridge, or other MA feature. This could even include a UMass building like Lederle Library or even your county fairgrounds. Include a labeled picture of your inspiration.

Engineering Miscellaneous: Here is a place to put your projects that do not fit in the above classes.

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### Art Department

Mission Patch: Create your own Mission Patch for the 4-H Mars bound Challenge. Here is a video link to learn from NASA how to create a mission patch. [https://youtu.be/u6zHQ\\_GOoXc](https://youtu.be/u6zHQ_GOoXc)

Challenge Coin: Challenge Coins are a physical symbol of appreciation and recognition of a job well done or exemplary service. Needs to include the 4-H Clover.

Upcycled Art: Using recycled materials create an esthetically pleasing art piece.

STEAM Collage: Using magazine, pictures, or drawings, create a collage representing what STEAM means to you.

Quilt: Submit your finished quilt and include a brief description of the pattern and fabric used. Submit your design with dimensions, patterns, and either drawn or fabric swatches as needed.

Functional Upcycle or Cosplay project: Use thrift shop clothes or clothes/fabric you currently own to create something new to wear or use repurposed items into something such as a bag, blanket, or bookmark. Think about upcycling not just for people, but for your animals too like an old sweater to a cat bed.

Shoebox Float: Using a Shoebox or other small box, create a float. Box should be under 12 inches in either direction. The theme is "My Superpower." <http://blogs.ifas.ufl.edu/cals/2021/10/08/celebrating-the-2nd-annual-cals-shoebox-parade/>

Model: Design a model of a barn, superhero hideout, paddock or event filling it with small stuffed or other small animal figurines in your collection. This could be a versatility course/obstacle for horses, a dog agility course, chicken coop, or dream barn as examples.

Art Miscellaneous: Here is a place to put your projects that do not fit above to show us what you are doing, and it could be a new class next year.

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## Math Department

**Tangrams:** Create a tangram design and include a description or additional picture if needed. Example: if you did a tangram of your cat, it would be great to have a picture of your cat with your tangram design. You may color the shapes. An optional\*Template is provided.

**Analog game:** Create your own board or card game.

**Math Miscellaneous:** Any math related project that doesn't fit into tangrams or analog game.

**Pixelation:** Create a piece using pixels. Break down and image into large or small squares. How many squares do you need to be effective? What number of colors will you use?

**Repeating Pattern:** How do patterns repeat in games or even wallpaper or fabric designs. Create one of your own based on your 4-H project(s) or interest.

<https://www.facebook.com/watch/?v=771743199619581>

image-spoonflower blog





# UMass 4-H STEAM Festival

## Science

### Rules and Instructions

- All General Rules apply and safety guidelines.
- Enter only one item in each class
- Enter 1 clear color photo, no more than 2 may be used to enter an item – (ex. front and side view or front and top view)
- \*Upload a video showing your project in action (optional- use audio or a voice over explaining what is occurring, or a detailed written description).
- Also, include the following in your submission:
  - a. Materials/Sensors used
  - b. A brief explanation of your methods



01: Cloverbud Greenhouse
02: Junior Greenhouse
03: Senior Greenhouse
04: Cloverbud Design
05: Junior Design
06: Senior Design
07: Cloverbud Science Experiment*
08: Junior Science Experiment*
09: Senior Science Experiment*
10: Cloverbud Space Project
11: Junior Space Project
12: Senior Space Project
13: Science miscellaneous project

## Technology

### Rules and Instructions

- All General Rules apply
- Enter 1 clear color photo, no more than 2 may be used to enter an item – (ex. front and side view or front and top view or HTML code and webpage)
- Include a brief written description of your project.
- \*Upload a video showing your project in action (optional- use audio or a voice over explaining what is occurring, or a detailed written description).
- Also, include the following in your submission:
- Materials/Sensors used
- A brief explanation of your methods

#### Sample Python Code

```
while True:
    x = input("Enter value: ")
    stop_light = int(x)
    if stop_light == 30:
        break
    elif stop_light >= 1 and stop_light < 10:
        print('Green light')
        stop_light += 1
    elif stop_light < 20:
        print('Yellow light')
        stop_light += 1
    elif stop_light < 30:
        print("Red light")
        stop_light += 1
    else:
        stop_light = 0
```



01: Cloverbud Scratch coded game or App*
02: Junior Scratch coded game or App*
03: Senior Scratch coded game or App*
04: Cloverbud Webpage design
05: Junior Webpage Design
06: Senior Webpage Design
07: Cloverbud Hackathon*
08: Junior Hackathon*
09: Senior Hackathon*
10: Cloverbud 3-D Printed Design
11: Junior 3-D Printed Design
12: Senior 3-D Printed Design
13: Cloverbud video
14: Junior video
15: Senior video
16: Cloverbud Robot - electronic-non kit*
17: Junior Robot - electronic-non kit*
18: Senior Robot - electronic-non kit*
19: Technology miscellaneous project*

## Engineering



### Rules and Instructions

- All General Rules apply
- Enter 1 clear color photo, no more than 2 may be used to enter an item – (ex. front and side view or front and top view or sketch and final design)
- Include a sketch and description of design
- \*Upload a video showing your project in action (optional- use audio or a voice over explaining what is occurring, or a detailed written description).



01: Cloverbud Rube Goldberg Invention*
02: Junior Rube Goldberg Invention*
03: Senior Rube Goldberg Invention*
04: Cloverbud Cardboard Arcade Game
05: Junior Cardboard Arcade Game
06: Senior Cardboard Arcade Game
07: Cloverbud Gadget
08: Junior Gadget
09: Senior Gadget
10: Cloverbud Catapult/Trebuchet - indicate kit or non kit*
11: Junior Catapult/Trebuchet - indicate kit or non kit*
12: Senior Catapult/Trebuchet - indicate kit or non kit*
13: Cloverbud Robot: non-electronic (indicate kit or non kit)*
14: Junior Robot: non-electronic (indicate kit or non kit) *
15: Senior Robot: non-electronic (indicate kit or non kit) *
16: Cloverbud Lego structure
17: Junior Lego structure
18: Senior Lego structure
19: Engineering miscellaneous project*



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## Art



Image from -Hello Wonderful

### Rules and information

- Art must be original, created by you, not paint-by-numbers or traced. Please provide a photograph of your artwork, description of your work that includes the materials used and the dimensions of your piece. Cover any signature.
- Submit one photo of the entire piece and one close-up photo that demonstrates stroke work, shading, or stitching.
- Enter only one item in each class.
- Enter a minimum of 1 clear color photo, (a maximum of 2 photos may be used to enter an item).
- Photos should clearly show any detail needed for clarity for judges.
- A description of up to 200 words may accompany photos if the exhibitor feels it is needed. Can include: materials, methods, and if made from a kit.
- \*When submitting your Video entry make sure to create your video according to requirements
  - Time limit of 2 minutes
  - 4-H Clover used correctly
  - Follow 4-H Code of Conduct
  - Submissions will be judged on
  - Creativity, content, costumes if used, and format
  - Adherence to time limit

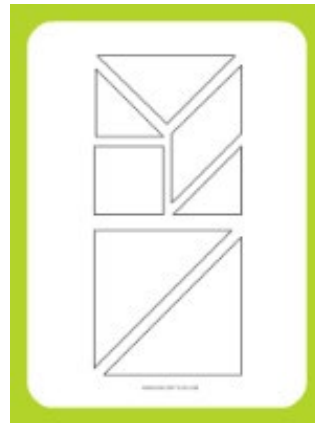
01: Cloverbud Mission Patch
02: Junior Mission Patch
03: Senior Mission Patch
04: Cloverbud Challenge Coin
05: Junior Challenge Coin
06: Senior Challenge Coin
07: cloverbud upcycled art
08: junior upcycled art
09: junior upcycled art
10: Cloverbud STEAM Collage
11: Junior STEAM Collage
12: Senior STEAM Collage
13: Cloverbud Quilt
14: Junior Quilt
15: Senior Quilt
16: Cloverbud upcycle/cosplay project
17: Junior upcycle/ cosplay project
18: Senior upcycle/cosplay project
19: Cloverbud shoebox float
20: Junior shoebox float
21: Senior shoebox float
22: Cloverbud Model
23: Junior Model
24: Senior Model
25: Art miscellaneous project

## UMass 4-H STEAM Festival

### Math

#### Rules and Instructions

- All General Rules apply
  - Enter 1 clear color photo, no more than 2 may be used to enter an item – (ex. front and side view or front and top view or sketch and final design)
  - Include a sketch and description of design
  - \*Upload a video showing your project in action (optional- use audio or a voice over explaining what is occurring, or a detailed written description).



<https://www.fun-stuff-to-do.com/support-files/tangram-set-clear-outline-large-printable-free.pdf> -Image from artnews.com



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