



MESA DAY RULES 2020-2021 (DRAFT)

Scratch It Up! – Virtual

- LEVEL:** Middle School
- DIVISION(S):** Grades 6-8
- COMPOSITION OF TEAM:** 1-2 student(s) per team
- NUMBER OF TEAMS:** Preliminary – Determined by your local MESA Center
Regional – one team per Center
- SPONSORS:** UC Santa Barbara MESA College Prep
UC Riverside MESA College Prep
- OVERVIEW:** Students will design and create an interactive video game using Scratch to demonstrate knowledge of core programming principles. **This competition is virtual for 2020-2021.**

MATERIALS:

- Scratch 1.4
 - <https://scratch.mit.edu/download>
- Computer able to run Scratch 1.4 or higher.

GENERAL RULES:

- 1) Game file must be properly named (see Judging 1). A 10% penalty in the score will be assessed for failing to properly name/label.
- 2) Create a game that addresses the theme and meets the specifications below.
- 3) Your team has been tasked by your local community to increase awareness of one of the NAE Grand Challenges for Engineering (<http://www.engineeringchallenges.org/>) through “gamification.” Using Scratch, create a game that will result in one or more of the following:
 - a. Educating users in one of the NAE Grand Challenges, and/or
 - b. Educate users in a solution to one of the Grand Challenges for Engineering of your own design or one currently being developed.
- 4) Your team must select one of the following NAE Grand Challenges for Engineering:

• Advanced personalized learning	• Secure cyberspace
• Make solar energy economical	• Provide access to clean water
• Enhance virtual reality	• Provide energy from fusion
• Reverse-Engineer the brain	• Prevent nuclear terror
• Engineer better medicines	• Manage the nitrogen cycle
• Advance health informatics	• Develop carbon sequestration methods
• Restore and improve urban infrastructure	• Engineer the tools of scientific discovery

JUDGING:

- 1) Files must be saved using the following standard naming convention:
 - a. *MESA Center (Abbreviated)_Division (Abbreviated)_School (Abbreviated)_Team Member 1 Name_Team Member 2 Name*
 - i. Example: UCSB_MS_SBJH_Mary Lane_Natalia Flor
- 2) Games will be judged on the following criteria (see Rubric):
 - a. Up to 5 points for Mechanics
 - b. Up to 5 points for Creativity
 - c. Up to 5 points for User interface/Human Computer Interaction
 - d. Up to 5 points for Implementation
 - e. Up to 5 points for Theme
- 3) 10% penalty will be assessed for missing 1 to 5 of below elements/specifications and 20% penalty will be assessed for missing 6 or more of below elements/specifications.
- 4) TIEBREAKER: The highest combine Creativity and Theme subscore followed by User interface/Human Computer Interaction
- 5) Files must be submitted by **(date to be announced)** by your local MESA Center. For regional event, your local MESA Center will provide you the submission instructions.

Specifications:

The following are the minimum requirements for the Scratch Game:

1. Progress System

- a. The game should measure the progress of the player up to the creator's choosing. For example,
 - i. A point system that calculates increases and/or decreases correctly
 - ii. A progress bar

2. A User Controlled Character/Sprite

- a. The character/sprite must have at least two-costume changes during gameplay.
- b. Must be controlled with either a keyboard or a mouse.

3. A non-Player Controlled (NPC) Character/Sprite

- a. Must have at least two costume changes.
- b. Must be able to move on its own during gameplay.

4. Background

- a. The "Stage" must have at least 2 backdrop changes during Gameplay.
- b. Each background must have their own looping sound.

5. Duration

- a. A user will be able to complete the game within 2 minutes.

6. Instructions

- a. The game must contain clear and informative in-game instructions for students in grades 5+ and all skill levels.

7. Start Menu

- a. The Start Menu will have the title of the game and a button to start the game.

8. Restart Button

- a. There must be a restart button that when selected the scoreboard, timer and characters to return to their initial status or positions.

9. End Credits

- a. An End Credits will be displayed at the end of the game with the following:
 - i. Full Names of Students, Grades, School, MESA Center

AWARDS:

- Medals will be awarded for 1st, 2nd, and 3rd place based on the Final Score.
- Only 1st Place will advance to Regional/State MESA Day.

SPECIFICATION AND SCORE SHEET FOR **SCRATCH IT UP!**
Middle School – Grades 6-8

MESA Center: _____ Student 1: _____ Grade: _____

School: _____ Student 2: _____ Grade: _____

Specification Criteria

- | | |
|---|--|
| <input type="checkbox"/> A) 2020-2021 rules were followed

<input type="checkbox"/> B) Game is properly labeled with team members' names, grade level, school, and MESA Center: (10% deduction in final score if not properly labeled)

<input type="checkbox"/> C) Progress System

<input type="checkbox"/> D) Stage Looping sound

<input type="checkbox"/> E) A user controlled character is present

<input type="checkbox"/> F) A non-player controlled character present and moves on its own

<input type="checkbox"/> G) Background changes at least 2 times

<input type="checkbox"/> H) Game may be completed within 2 minutes | <input type="checkbox"/> I) Instructions Present

<input type="checkbox"/> J) Start Menu present

<input type="checkbox"/> K) Restart button present and works as expected

<input type="checkbox"/> L) End Credits

<input type="checkbox"/> M) User controlled character has at least two costume changes

<input type="checkbox"/> N) Non-player controlled Character present |
|---|--|

Judging Criteria

See next page for the rubric.

Design	Mechanics Score: ____ / 5	Creativity Score: ____ / 5	Design Subscore: Mechanics Score + Creativity Score + UI/HCI Score + Implementation Score
Theme Score: ____ / 5	UI/HCI Score: ____ / 5	Implementation Score: ____ / 5	
Labeling deduction:	Design Subscore X (- .10) (if applicable)		=
Specification Deduction:	Design Sub score X % deduction		=
1-5 Missing elements from the specification checklist apply a 10% deduction. 6+ Missing Elements from the specification checklist apply a 20% deduction.			FINAL SCORE Design Subscore – Labeling Deduction – Specification =

Scratch It Up!

Rubric

NAMES:	CENTER		Met Criteria	SCHOOL		
	Exceptional 5	Excellent 4		Fair 2	Beginning 1	Not Present 0
(A) Mechanics: Game composition and purpose is clearly understood. After one or two plays, the user will understand how the game works.						
(B) Creativity: Game concept is highly creative. Any sound present adds to immersion of the user. Game makes effective use of multiple costume/background changes that respond to user progress/actions						
(C) User interface/Human Computer Interaction: Control Scheme is intuitive, with little or no learning curve (to navigate game). Clear directions are present. Game elements are interconnected or sprites influence other sprites. The design is very intuitive (e.g. it is clear what element earns points and what elements to avoid)						
(D) Implementation/Design: The game works as designed with no errors due to programming or design. Game uses programming elements effectively. All elements within the game are used.						
(E) Theme: Game/application connects well with the theme. It represents the theme well, and is useful in furthering and dealing with the theme issue.						