



Game On (Div. C)

Indiana Coaches Clinic 2016-17

Dan Nichols

Dnichols@ns.whiting.k12.in.us



Presentation Parts

Part 1 – Rules overview/Updated rubric

Part 2 – Student preparation

Part 3 – Supervisor recommendations

Part 4 – Sample games

Part 1 – Rules overview



Description

- ▶ This event will determine a team's ability to design and build an original computer game incorporating the theme provided to them by the supervisor using the program Scratch.

EVENT PARAMETERS: Students

- Teams may bring:
 - Writing Utensils
 - A headset to assist in testing audio
 - A microphone to assist in recording original audio

Students may not:

- No internet access outside of the Scratch program is allowed
- No other computer programs can be utilized
- No external resources of any kind are allowed
- No pre-constructed games, game assets or files of any kind are allowed

EVENT PARAMETERS: Supervisors

- Supervisors must provide:
 - A computer capable of running Scratch (Tournament directors are encouraged to provide computer specifications to the teams as early as possible)
 - A broad theme to build their original computer game around
 - Scrap paper

THE COMPETITION:

- The supervisor must assign the teams a broad theme that the original computer game will be built around. The theme must be the same for all teams and allow students to build games involving some scientific principles associated with the theme.

SAMPLE GAME THEMES:

- ▶ Some possible game themes:
 - Fire
 - Gravity
 - Silly sports
 - Frogs
 - Waves
 - Light

THE COMPETITION:

- ▶ Students will use the Scratch program (Available on-line and for download from <http://scratch.mit.edu>) to create an original computer game based on the assigned theme.

THE COMPETITION:

- ▶ When teams are finished, they must save their game following the supervisor's instructions in the specified format in a designated location. (ie: USB drive, desktop, online repository)

SCORING:

- ▶ Scoring of the event will be done using the scoring rubric (found on www.soinc.org). Zero points will be awarded for items not being present in the game or inappropriate content. Points will be awarded based on the coding and/or game play of the items.

SCORING:

- ▶ Any team caught using outside resources, accessing other computer programs or the internet outside of the scratch program will be asked to leave the room and be disqualified from the event. (This includes logging into a student's Scratch account)
- ▶ Any team not addressing the assigned theme in their game will be ranked behind those who do, because not addressing the theme is a violation of the spirit of the competition.

SCORING:

- ▶ Ties will be broken by comparing the point totals in the scoring areas in the following order:
- ▶ 1st Tie breaker – Total points for Game Mechanics, 2nd – Game play, 3rd – User control, 4th – Balanced Play, 5th– Overall Game

SCORING RUBRIC:

- ▶ The scoring rubric is broken down into two major categories: Game Mechanics and Game Play
- ▶ Game Mechanics is the portion of the scoring that deals with the coding and development of the game
- ▶ Game Play is the functioning of the game during game play
- ▶ Each of these categories is worth 50 points.

SCORING RUBRIC: Game Mech

- ▶ Introduction (4 Points)
 - Game title is present
 - Buttons/keys used to access other screens/options

SCORING RUBRIC: Game Mech

- ▶ Help/instructions (6 Points)
 - game objective stated
 - movement controls explained
 - scoring explained

SCORING RUBRIC: Game Mech

- ▶ User controlled (UC) sprite (6 Points)
 - movement complexity (4 pts)
 - sprite orientation

SCORING RUBRIC: Game Mech

- ▶ Autonomous sprites (6 Points)
 - movement complexity (4 pts)
 - sprite orientation

SCORING RUBRIC: Game Mech

- ▶ Collision management (4 Points)
 - sprite interactions
 - environment interactions

SCORING RUBRIC: Game Mech

- ▶ Scorekeeping (4 Points)
 - functions properly in game
 - scoring appears on screen

SCORING RUBRIC: Game Mech

- ▶ De-briefing (8 Points)
 - clear outcome for the game
 - game play stops
 - items remaining on screen are appropriate
 - end of game options available

SCORING RUBRIC: Game Mech

- ▶ Documentation (4 Points)
 - coding comments included
 - main sections of coding explained

SCORING RUBRIC: Game Mech

- ▶ Code organization (8 Points)
 - elements are named/titled
 - elements are logically grouped and organized
 - coding is efficient (4 pts)

SCORING RUBRIC: Game Play

- ▶ Science of theme (12 Points)
 - level of scientific thought applied to theme (4 pts)
 - appropriate principles applied to theme (4 pts)
 - scientific explanation included in game (4 pts)

SCORING RUBRIC: Game Play

- ▶ Graphics (12 Points)
 - (4 pts) quality/complexity of UC sprite
 - (4 pts) quality/complexity of Autonomous sprites
 - (4 pts) quality/complexity of backgrounds

SCORING RUBRIC: Game Play

- ▶ Sound (6 Points)
 - sounds are appropriate
 - quality/complexity of sounds (4 pts)

SCORING RUBRIC: Game Play

- ▶ Play balance (12 Points)
 - level of difficulty (4 pts)
 - speeds are appropriate for the game (4 pts)
 - movements in the game are appropriate(4 pts)

SCORING RUBRIC: Game Play

- ▶ Overall game (8 Points)
 - overall impression of the game (4 pts)
 - originality of the game (4 pts)

Part 2 – Student Preparation



Coaching tips

- ▶ Practice, Practice, Practice
- ▶ Make sure students can build games without logging in to their Scratch account. There are subtle differences between the two.
- ▶ Make sure students are proficient at building different game types (ie collection, avoidance, racing, etc)
- ▶ Make sure they practice coding more advanced movements

Coaching tips

- ▶ Spend time playing other peoples games and examining the coding in the games to see how they coded it.
- ▶ Get feedback from students, coaches parents on your games.
- ▶ Do some scientific research on potential science topics and what game ideas you can come up with.

Coaching tips: Competition

- ▶ Have students work together
- ▶ Decide in the first few minutes what type of game they will build
- ▶ In first five minutes game idea should be set and construction should have begun
- ▶ Keep track of your time
- ▶ Save early and often
- ▶ Notify the supervisor immediately if a computer problem arises
- ▶ Have fun

Part 3 – Supervisor Recommendations



Event Set-up: Logistics

- ▶ As with any event – this is very site dependent
- ▶ Needs:
 - Supervisor for game creation room
 - Recommended to have 1 or 2 other monitors to help monitor students and make sure they are on the correct site and to also help troubleshoot any issues
 - Graders
 - Recommended to have 3 graders if possible and average the score to get the winning team
 - Time permitting, have each grader score every game
 - If time is limited, have the graders break the rubric into parts with the same person grading the same part

Event Set-up: Logistics

- ▶ Volunteers – if you have volunteers they make excellent monitors to help supervisor
- ▶ Computers – PC or Mac (Scratch looks and functions the same on both) Will run on desktop or laptop Can be run on-line or offline. Recommended to have a site IT person available for problems
 - Numbers– ideally you have twice as many machines as you have teams per time block That allows for a faster turn around between sessions

Event Set-up: Logistics

- ▶ Explain to the students how the event is run and how to name their game and save the games
- ▶ Try to put any vitally important materials in writing on the board for teams to see (ie how to save game where to save game how to name game, etc)
- ▶ If possible, display a countdown timer for the students so they can see how much time is remaining

Event Set-up: Logistics

- ▶ Saving game – have a specified way of naming the saved game (ie: team number then part of school name C77Allstaracademy)
- ▶ Save location – vitally important to explain to teams where to save the game.

Event Set-up: Logistics

- ▶ Saving game – ways to save
 - Desktop
 - Flashdrive
 - On-line repository
 - Network drive folder
 - Any other site specific way that fits your needs

Event Grading:

- ▶ Graders:
 - have a separate quiet grading room
 - laptops work great for graders.
 - Each grader needs ear buds since most games will have sound and can be very distracting
- ▶ Grading approach
 - Many different approaches to grading. This is the sequence that the graders from this years National tournament agreed would work. Approximately 10 minutes should be utilized to grade the game

Event Grading:

- ▶ Start off by playing the game a few times (for first 1 to 2 minutes max)
- ▶ Grade the coding section next – as you examine the code, apply what happened in the game to the code and score with the rubric (replay game as needed)
- ▶ Grade the game play section next replay the game trying to win, then trying to lose, then again as needed .

Event Grading:

- ▶ Some discussion on how/when to assign points for Overall game play
 - Can be done as you grade the game
 - Can be done by returning to the game at the end of the day and assigning points after all games have been seen.
 - Can be done as you finish each sections' games

Part 4 - Sample Games



Internet Resources

- ▶ <https://scratch.mit.edu/>
- ▶ <https://scratch.mit.edu/help/>
- ▶ More resources will be forthcoming on the National Science Olympiad Site
www.soinc.org