

LEVEL:	Middle School/High School
NUMBER OF TEAMS:	One (1) team per school can participate at the MESA Day state competition. Three (3) teams can participate at MESA regional events.
TEAM MEMBERS:	Two (2) to Four (4) Students per Team
OBJECTIVE:	Students will participate in teams to hack other computers while protecting their own computer from hackers. Teams will use the MESA Hack Attack website for competition. Teams will need to solve Computer Science (CS) puzzles to earn points to hack other computers
MATERIALS:	All materials will be provided by MESA.

RESOURCES:

URL: <http://mesahackaz.azurewebsites.net/game.html>

Specific types of puzzles and links to practice are in the **Puzzles** section of the specifications.

TESTING PARAMETERS:

1. Team members will work as a team. During MESA Day, all team members must interact in the Hack Attack website.
2. Teams are not be allowed to use cellphones or other electronic devices to solve puzzles. Teams caught using these will be disqualified.
3. Teams will register on the website with their school name. Teams will be assigned an anonymous pseudonym during the Attack.
4. Teams will have 30 minutes to Hack to score as many points as possible.
5. Hacks are attacking another team.
6. Viruses are the attacks on a team, which will give the team an advantage and put the opponent at a disadvantage.
7. The game will have 6 Up-grades that can help a team.
8. The game will have a Moderator who is also a judge.
9. The Moderator can attack all players in the game at any time.
10. The team with the highest score wins.

PUZZLES:

- Convert Binary Numbers to Decimal and Decimal Numbers to Binary
 - <https://www.mathportal.org/calculators/numbers-calculators/decimal-binary-hexadecimal-converter.php> A converter with steps to demonstrate the process
 - <https://www.rapidtables.com/convert/number/binary-to-decimal.html> Enter a value and it will convert it along with demonstrating the math
- Caesar Cipher
 - <https://cryptoclub.org/> A good place to practice the cipher
 - <https://crypto.interactive-maths.com/caesar-shift-cipher.html> An online tool that encrypts and decrypts with tools to see how the process works

- Truth Tables
 - <https://www.cs.utexas.edu/~learnlogic/truthtables/> An interactive site to test truth tables. You create the conditions and it will generate a table. You fill in the rest and it tells you if you are correct or incorrect
- Computer Science Terms
 - <https://www.vocabulary.com/lists/1508422> A glossary of Computer Science terms
- Minimum Spanning Tree
 - <https://classic.csunplugged.org/minimal-spanning-trees/> - Has some good activities and links to more
 - <https://www.hackerearth.com/practice/algorithms/graphs/minimum-spanning-tree/tutorial/> A site explaining the process for a minimum spanning tree along with coding examples
- Follow the Code and Give Result
 - https://www.w3schools.com/java/java_while_loop.asp An example for a While loop with questions
 - https://www.w3schools.com/java/java_for_loop.asp An example for a For loop with questions
 - <https://codingbat.com/doc/java-for-while-loops.html> A detailed guide to loops
- Tic Tac Toe
 - <https://playtictactoe.org/>

TYPES OF HACKS AND VIRUSES:

- **Firewall:** When activated, team will have an increased protection for up to 3 minutes. Teams attempting to hack another team with a firewall active will have to complete double the amount of minigames to have the same effectiveness.
- **Address Spoof:** When activated, team will have the ability to change their name to anything they choose, including that of another team. Their name on the targets list and in chat will show up as the spoofed name for a duration of up to 3 minutes.
- **Virus - Fat Fingers:** When activated, team will be prompted to choose an enemy team. For up to 3 minutes, that chosen team will have a malfunctioning keyboard whenever they want to type, making it difficult for them to complete puzzles or chat.
- **Incognito Mode:** When activated, team will disappear from other teams' target list for up to 2 minutes. During these two minutes, the team will be able to hack other teams but not be hacked unless they were already be hacked before the powerup went into effect.
- **Virus – Adware:** When activated, team will be prompted to choose an enemy team. For up to 3 minutes, that team will be annoyed with harmless pop ups that block their view of the game. They must click the X on the window if they wish to get rid of it.
- **Brute Force Attack:** When activated, the teams next hack will steal double the cryptocurrency from the team they hack.
- **Logic Bomb:** When activated, the team will be equipped with a layer of protection from their next attacker. The next team who attempts to hack the team will lose 5% of their currency and be unable to attempt a rehack on the team for 1 minute.

UPGRADES:

- **RAM** - Hacks deal 25% more damage
- **Cooling** - Hacks against you are 25% weaker
- **Router** - Allows you to see what up-grades targets are using
- **CPU** - Viruses used against you are 25% weaker
- **GPU** - Viruses you use are 25% stronger
- **Power Supply** - Generates 2 Money every 10 seconds

SCORING CRITERIA:

1. Points are earned from successful solving of puzzles.
2. Points are lost from unsuccessful solving of puzzles
3. An Up-Grade will add to your score. The longer you hold an Up-Grade, the more points are earned.

SCREENSHOT OF HACK ATTACK

NERVOUS LEMUR		SCORE: 0
TARGETS FINE TARANTULA <small>HACK</small> SCRUFFY WHALE <small>HACK</small> CLEVER SNAKE <small>HACK</small> COLOSSAL TARANTULA <small>HACK</small> OBEDIENT YETI <small>HACK</small> IRON GOAT <small>HACK</small> FANCY KRAKEN <small>HACK</small> QUIET JAGUAR <small>HACK</small> QUIBBY OYSTERS <small>HACK</small> CHAT FANCY KRAKEN: WELCOME :) FINE TARANTULA: HOPE YOU GUYS ARE READY :D IRON GOAT: I'M GONNA HACK CIRCLES AROUND YOU GUYS CLEVER SNAKE: PSSH, YEA RIGHT :))	CONVERT THE FOLLOWING DECIMAL NUMBER TO BINARY 16 ENTER YOUR ANSWER IN <small>SUBMIT</small>	LOG > RIDICULOUS BEE HAS CONNECTED > SHY SHEEP HAS CONNECTED > ANGRY JAGUAR HAS CONNECTED > FANCY OSPREY HAS CONNECTED > SILLY LEVIATHAN HAS CONNECTED >TRANSPORT CLOSE HAS DISCONNECTED > CLUMSY BISON HAS CONNECTED > SLEEPY WHALE HAS CONNECTED > QUARANT PILLBUG HAS CONNECTED POWERUPS