

## Curriculum Unit – Collaborative Learning – The Great Rodent Game



# The Great Rodent Game\*

### Audience:

Middle school, high school and college students  
No programming background required

### CS Curriculum:

Collaboration, cooperation, communication, problem solving, requirements specification

### Physical Resources:

Copies of the instructions and rule subsets  
Presentation materials (large paper or transparencies and markers)

### Time:

One or two 45-minute periods; one 75-minute period

### Related Disciplines:

Language arts, science

### Student Motivation:

Curiosity about how the game works  
Desire to learn baseline for use in later activities

### Introductory Material:

The purpose of this activity is to begin to understand a simple game while working collaboratively in groups.

### Activity:

There are seven handouts: one common set of instructions and questions, given to all participants, and six unique sets of rules, one for each member of the team. Distribute the handouts as appropriate.

The team must answer all questions, following the instructions given on that handout. Team members are not allowed to physically share their rules with other team members.

Each team must submit a set of written answers to the questions.

After the answers have been submitted, engage the large group in discussion about the resulting products (answers) and the process.

### Materials:

Main Handout : Instructions & Questions

Rule Subset Handouts: Set 1 Set 2 Set 3 Set 4 Set 5 Set 6

\*Derived from The Great Rodent Game by Professors Noel LeJeune and Jerry Shultz at Metropolitan State College of Denver. Curriculum Unit prepared by Nancy Quesenberry and Jody Paul.

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## The Great Rodent Game

Through this activity we work collaboratively to understand a simple game that we will use as the subject of future activities.

### Instructions to Participants

First, read the set of rules you have been given. Do **NOT** physically share your rules with other members of your group.

Next, working together in your assigned small group, answer the questions listed below. You may refer to your rules to share your knowledge but do **NOT** physically share your rules with other members of your group.

Finally, write the answers to the questions on the materials provided. These will be turned in and used for presentation and discussion.

### Questions:

1. What actions can a player perform during his or her turn?
2. How does a player win the game?
3. Where is the cheese bank? What are the properties and significance of this square?
4. How can a mouse increase the amount of cheese it has?
5. What are the types of terrain in the game?
6. What does it cost to move a mouse?
7. How can a square be fortified? Which squares are eligible for fortification?
8. What benefits are available from MMU?
9. How does the amount of cheese that a mouse has change?
10. What happens if a mouse has no cheese with it?
11. What happens if two mice are in the same square?
12. What situations are not explained by the rules you have been given?

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## **The Great Rodent Game**

### **Rule Set for Team Member 1**

Remember, these rules are for **you** to refer to.

Do **NOT** physically share your rules with other members of your group.

#### **Rules:**

1. Each player controls one or more mice.
2. A mouse can move in the grid each turn.
3. A "stranded" mouse is one that has insufficient cheese to move.
4. The game ends after a predetermined number of turns.
5. A mouse may pick up a cheese from a grid square.
6. A mouse may expend a maximum of two cheese per turn to move.
7. The grid dimensions represent the four compass points—N,S,E,W.
8. If a three-dimensional grid is played, the added dimensions are Up and Down—U,D.
9. A mouse moving one unimproved grid square consumes two cheeses.

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## The Great Rodent Game

### Rule Set for Team Member 2

Remember, these rules are for **you** to refer to.

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#### Rules:

10. The number of cheeses produced by a given cheese factory is determined when it is built.
11. A mouse has the ability to carry up to a specified number of cheeses.
12. A mouse increases its probability of success in resolving a conflict if it has a higher skill level than its opponent.
13. Grid squares may contain cheeses.
14. The number of cheeses in a grid square varies but may not exceed a specified maximum number.
15. A semester at MMU costs five cheeses.
16. Creating an additional mouse costs a predetermined number of cheeses from the cheese bank.
17. Any grid square may be fortified by a player.
18. No mouse conflicts occur at MMU.

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## The Great Rodent Game

### Rule Set for Team Member 3

Remember, these rules are for **you** to refer to.

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#### Rules:

19. The game may end prior to the predetermined number of turns if only one player has one or more mice remaining.
20. A grid square might not contain any cheese.
21. A mouse may fortify a square by "paying" a predetermined number of cheeses.
22. Two human players compete with each other.
23. If a grid square has been "improved" by a mouse, the cost of moving into that square is one cheese.
24. Additional cheeses are required for an opposing mouse to enter a fortified square.
25. A mouse may not move into an impassable terrain grid square.
26. Cheese dropped by a mouse remains in the square where dropped.
27. If a mouse moves into a grid square occupied by a mouse of another player, conflict ensues.
28. Cheese factories are automatically built when the game starts.

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## The Great Rodent Game

### Rule Set for Team Member 4

Remember, these rules are for **you** to refer to.

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#### Rules:

29. Each player has a "home base".
30. A mouse's "cheese bank" is its player's home base.
31. MMU is located at a predetermined grid square.
32. A mouse moving one improved grid square consumes one cheese.
33. A player's mouse may raid another player's cheese bank.
34. The only cheeses that count toward a victory are those stored in a player's cheese bank.
35. An impassable grid square may not be improved.
36. A mouse may drop any cheese it is carrying.
37. Each cheese factory produces a fixed number of cheeses each cycle of turns.
38. A mouse increases its skill level for resolving conflict by attending MMU.

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## The Great Rodent Game

### Rule Set for Team Member 5

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#### Rules:

39. The game is played on a grid of squares.
40. A mouse may deposit cheese in its cheese bank by returning to its home base with excess cheese.
41. A newborn mouse has a predetermined number of cheeses.
42. The objective of the game is to amass the greatest amount of cheese.
43. A stranded mouse is magically granted one cheese per turn.
44. A player may have more than one mouse.
45. At the end of the game, the player with the most cheese in his or her cheese bank wins.
46. A mouse's home base is its starting square in the grid.
47. A cheese bank may be fortified, making raiding more difficult.

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## The Great Rodent Game

### Rule Set for Team Member 6

Remember, these rules are for **you** to refer to.

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#### Rules:

48. Cheeses are produced by cheese factories.
49. Each level of fortification of a square increases the cost for an opposing mouse to move into it.
50. A player can purchase a new mouse at a cost of a predetermined number of cheeses.
51. Attendance at Mighty Mouse University (MMU) requires the mouse to enter the MMU grid square.
52. A mouse may "improve" a grid square by paying one cheese while in that square.
53. A grid may be a two-dimensional or three-dimensional matrix of squares.
54. A grid square may have impassable terrain.
55. A player may create an additional mouse on any turn.
56. A new mouse is put on the player's home base.