



Activity F.4  
Robot Miner

Game Objective: Maneuver your robot up and down the Mountain to collect as many jewels as possible before your robot runs out of fuel.

Recommended Number of Players: 2 - 6 divided into teams

Ages: 8 & up



Setup:

- 1) Use one Mountain for each team or allow them to take turns on one Mountain.
- 2) Staircases may be set up in any order. If using more than one Mountain allow each team to decide the staircase order.
- 3) Each team uses a red token blank side up as their robot.
- 4) Using any foam card (except red) place the multiples on the Mountain(s) blank side up for all staircases except 1x and 2x. These will now become jewels.
- 5) You will need two dice.
- 6) Assign a timekeeper or use a timer.
- 7) Make a copy of the 2D worksheet (Multiples) for each team to record jewels captured and tally their score.**

Play:

- 1) Each team works for the McMartin Mining Company. The company has just bought a robot to mine Zillio for jewels. There is one and only one jewel on every step. When the robot collects a jewel (by turning it number side up) it acquires enough energy to move only one more step. It can only move diagonally, to the next higher step or the next lower step, on neighboring staircases to the right or to the left of its present position. It cannot move horizontally (at the same elevation) or vertically (up or down on the same staircase). If it moves to a step whose jewel has already been claimed, the robot must come to a complete stop and the play is over for that team.

- 2) Roll two dice to determine the bonus tokens. The sum of the numbers on the dice represents the multiples that are worth 3 times as many points as all other tokens.

For example: If the numbers 2 and 5 are rolled, any jewel that is a multiple of 7 is worth 3 times as much as other tokens. Teams need to plan their starting point and their route to pick up as many of bonus tokens as possible.

- 3) Teams decide which of two ways teams will calculate their score:
  - a. Each bonus token counts as 3 points; all other tokens are worth 1 point each.
  - b. Each bonus token counts as 3 times the face value of the token; any other token is worth the face value of the token.
- 4) Each team has five minutes to plan their strategy and program their robot.
- 5) Roll the dice to determine which team goes first.
- 6) In turn each team places their robot on the Mountain and begins collecting jewels by turning them over number side up.
- 7) When the robot runs out of accessible fuel (no longer can move diagonally to reach a jewel still blank side up), the team's turn is over and the score is calculated. Team members quickly record the jewels captured on their 2D score sheet by circling the tokens number side up and then begin tallying their score, while the next team gets ready to play.
- 8) The next team turns all tokens blank side up and then takes its turn.
- 9) The team with the highest score wins.

#### Advanced Play:

After playing several times allow teams to create the role of a "claim jumper". A claim jumper can steal jewels that have not yet been claimed under conditions mutually agreed upon in advance. When they steal a jewel they will remove the jewel(s) from the Mountain. Neither team gets those points because the ownership of stolen jewels is under dispute but by removing strategic jewels, the opposing team can ruin the strategy of the team in play. In advance the teams will need to decide the rules:

- When can a claim jumper strike?

- How many jewels can he/she take at a time or in total?
- What criteria can they use to steal?
- Is there any way to reclaim those jewels?
- And so on.

For example rules could be set up to allow claim jumpers to steal 1 jewel after the opposing team has captured 20 jewels, as long as the jewel is not on an adjacent staircase to the robot's present location.

