

Monarch Migration Game

Teacher Directions

MATERIALS:

10 clear plastic cups, numbered if you wish

4-8 symbolic butterflies per child (you can use orange spray-painted dried beans)

9 large dice

1 sign for each of the ten stations (possibly stapled to wooden stakes). Text is included on the next page, but you may wish to jazz them up with pictures.

large playing area - the kids like to run between stations. Lay the stations out in a roughly circular fashion so they end up near the starting point.

PROCEDURE:

Start the kids around the stations in teams of three or four, each with a 'reader' if necessary. Depending on number of teams and the speed with which they progress, you may wish to designate one 'dice roller' for each team.

Keep an eye on their progress. When they are done, they should sit down at the finish with their 'monarchs' and wait for others to finish.

Gather the cups up as the last group passes each station. Arrange them in order with the numbers showing.

PROCESSING:

How did you do? (Let them share some disasters/successes!)

Do a 'hands-raised' poll to find out how many each child lost. You could chart the numbers or use them to determine the average loss. I usually collect the 'monarchs' after this so the kids aren't tempted to start throwing them or whatever!)

Which hazard was the worst? Which was the easiest? (Refer to the cups. You could count up the losses and chart that, too!) Do you think there might be other hazards for the butterflies? What other kinds of hazards could be included in this game?

Why were some hazards worse? (Look at the directions and figure up the odds for each cup.) Would some natural hazards be worse than others?

Were the actual losses 'in line' with the levels assigned each hazard? Why or why not? (Luck, loaded dice, whatever) Do you think any natural hazard could ever totally wipe out this species?

Do you think that, for example, 1 out of every 3 butterflies crossing the road get hit by cars? (Yes, the odds are exaggerated for this game!) What do you think the real rate of loss is for each hazard? How could you find out?

Advanced mathematics groups could figure up what the overall odds are for butterfly survival
Hint: there's a reason you start with at least 4 butterflies.

MONARCH MIGRATION TEXT

START

You are a monarch butterfly living in North America. It is September, and you must leave this place to start your long flight south. You may come upon many hazards in your 5,000-kilometre flight to Mexico. Pick up 4-8 symbolic 'monarchs' from the cup. Guard their lives carefully as you migrate with them through the game.

Roll the dice at each site to find out your fate. If you die, you must leave one 'monarch' in the cup.

GOOD LUCK!

No. 1 - Monarch Crossing

You come upon a road. Not realising the possible hazard, you start to cross it. Will a car hit you, or will you make it across safely? Roll the dice to find out.

If you rolled a 2 or a 4, you got hit by a motorcycle or car, too bad! Put a 'monarch' in the cup and move on.

If you rolled anything else, you survived. Fly on!

No. 2 - Will You Be Dinner?

A Mynah sees you as you roost. Is it an older Mynah that learned from the last monarch it ate, that monarchs can make you sick? If so, it will probably leave you alone. Or is it a younger mynah who has not yet learned about yucky monarchs? Roll the dice to find out. If you rolled 2,3,4,5, or 6, you survived. Fly on!

If you rolled a 1, you died so other monarchs might live. Too bad! Put a 'monarch' in the cup and move on.

No. 3 - Stormy Skies

Butterflies do not do well in the cold. An early winter storm hits, so you stop until it is over. Are you able to keep warm enough to survive, or does a heavy frost kill you?

If you roll a 3 or a 2 (32° Fahrenheit or 0° Celsius, freezing point), you have frozen to death. Put a 'monarch' in the cup and move on.

Otherwise, you survived. Fly on!

No. 4 - Nabbed In A Net?

Some children see beautiful, colourful butterflies and want to add them to their collections. One child swings his net. Does he catch you, or does he catch that White Cabbage butterfly next to you?

If you rolled an even number, you escaped. Fly on!

If you rolled an odd number, you got caught. Too bad! Put a 'monarch' in the cup and move on.

(The kids should make a detailed drawing of the butterfly and let it go instead of killing it!)

No. 5 - Windy Weather

You only weigh .4 gram, which is less than the weight of a 5c piece. If it gets too windy you can be blown off course and never reach the Sierra Madre Mountains. Will the weather stay calm, or will you be blown away?

If you rolled a 5 or 6, you got blown out into the ocean and drowned. Too bad. Put a 'monarch' in the cup and move on.

Otherwise, you survived. Fly on!

No. 6 - Big Peaks

Those mountains up ahead look awfully tall! Flap as hard as you can. Will you be able to fly over them?

If you rolled a 6, you just couldn't make it. Too bad! Put a 'monarch' in the cup and move on.

Otherwise, you survived. Fly on!

No. 7 - Is There A Place For You?

Loggers tried to cut some more of the trees in the small area in the Mexican Mountains where monarchs spend the winter. Were the loggers able to cut the trees, or were the 'federates' and residents able to stop them?

If you rolled a 1 or a 3, it was your unlucky day. Your forest is gone. Put a 'monarch' in the cup and move on.

Otherwise, you survived. Fly on!

No. 8 - Sick Butterflies

Sometimes a virus spreads through the wintering grounds. If you get it, you give it to your eggs. Will it hit this year?

If you roll an even number, you survive. Fly on!

If you roll an odd number, you got sick and died. Too bad! Put a 'monarch' in the cup, and move on.

No. 9 - Boys, Boys

In spring, female monarchs prepare to head back up north, laying eggs as they fly through the land. Most males are too weak after mating many times to make this return trip. Male monarchs have scent glands (spots) on their wings.

If you roll an odd number - you are a male and must put one 'monarch' in the cup.

If you roll an even number, you are a female and can fly on.

No. 10 - FINISH

If you have any 'monarchs' left after your long, hazardous journey, at least some of the monarch lives that you represent survived to return north! Now your children and grandchildren and great-grandchildren will continue flying north throughout the summer. CONGRATULATIONS!! Please sit down with the rest of your 'monarchs' and wait for the rest to finish.