

GCO G: Students will represent and solve problems involving uncertainty.**Outcomes**

KSCO: By the end of grade 3, students will be expected to

- i) *conduct informal investigations of chance and estimate probabilities with respect to games and other simple, everyday situations*

SCO: By the end of grade 3, students will be expected to

- G1** predict and record results in experiments using spinners, coins, dice, coloured cubes, and other simple equipment

From a basic understanding that one event can be more or less likely than another, students can begin to predict specific ratios of outcomes of simple events. Before students have worked with part-to-whole ratios, use language such as "65 out of 100" instead of using fractional probabilities. A discussion of reasons for their predictions is always important. The experiment should then be conducted, and results compared with expected outcomes. (Elementary School Mathematics, p. 385)

Suggestions for Teaching and Learning

G1 Students should conduct a variety of experiments and record the outcomes. While some students might simply list frequencies of various outcomes, others may be able to use fractions to describe the probability of events.

For example, the students might roll 2 dice twenty-five times and count the number of times that the following events occur:

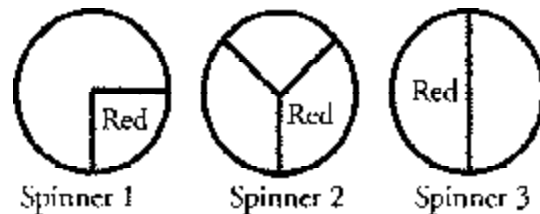
- the sum of the numbers is 7
- the difference is 2
- the product is even

Some students may be able to record the results for each outcome (sum, difference, product) on a given roll, while others may need to focus on one outcome at a time.

Once students have recorded the data, they might then make comparative statements. For example, it is more likely that the product is even than having a difference of 2.

Have them compare their findings with their classmates.

Students might use spinners and predict how often the arrow will land on particular sections in 12 spins. They can then test (and record) their predictions. Discuss how many got what they predicted. Collect the total results of the spins for a group of 10 students (120 spins) and compare the predictions to the results for the whole group. This will provide the opportunity to discuss the idea that a sample of 12 may not give the predicted results, but that larger samples, such as 120, will come closer.



Have the students devise a way to record their spins and tosses. Ask them to share their findings with their classmates.

Provide activities in which students compare their findings of a few experiments (spins/tosses) with those of many.

At this level, students should be expected to use probability language, such as "1 out of 4" or "1 chance in 3."

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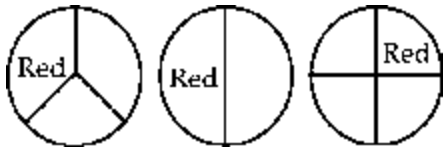
Suggestions for Assessment

Performance

G1.1 Ask the student to design a spinner on which one is more likely to spin red about eight times out of ten spins.

G1.2 Have students spill 10 two-coloured counters and record the number of each colour which occurs. Ask them to predict if it is more likely that one colour will come up more often than the other with 10 spills. Have them conduct the experiment and report on their findings.

G1.3 Show the student the spinners below.



Have the student predict the number of times red will be spun out of 10 spins for each spinner. Ask him/her to conduct the experiment to verify predictions.

Interview

G1.4 Tell the student that you tossed a coin 25 times. Have him/her predict the approximate number of heads/tails.

Presentation

G1.5 Show the students a picture of a game at the exhibition. Tell them that you can win if the ball lands on an even number. Have them discuss the chances of winning.

G1.6 Ask pairs of students to think of what might happen about half the time when a die is rolled. Students should experiment with the die, record outcomes, and later present their findings to classmates.

3	2	1	4	7
9	7	5	3	1
6	1	9	7	2
1	5	3	8	9
7	9	1	5	3

Resources

