



Makes Maths Fun

Level 4

CHANCE & PROBABILITY

Bloomsmath is a comprehensive mathematics program which provides a fun way for every student to be learning to the best of their ability.

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Chance & Probability

Level 4 is designed for students in their fourth year at school often called Year 3. Students will describe and compare chance events in social and experimental contexts.

Knowledge: Students will match events to their chance of occurring.



Students who demonstrate proficiency in this activity move on to Comprehension.



Students stop here as they require additional teacher support to master this activity.

Comprehension: Students will play the game "What are my Chances".



Students who demonstrate proficiency in this activity move on to Application.



Students stop here if time has run out or they require additional support with this activity.

Application: Students will test their predicted probability of an event occurring.



Students who demonstrate proficiency in this activity move on to Analysis.



Students stop here if time has run out or they require additional support with this activity.

Analysis: Students look at whether chance changes over time.



Students who demonstrate proficiency in this activity move on to Synthesis.



Students stop here if time has run out or they require additional support with this activity.

Synthesis: Students will learn how to "cheat" at chance events.

Evaluation: Suggested questions provide a starting point for discussions related to Chance & Probability.



Students may complete more or fewer activities for each learning outcome depending on the time allocated and their strength in the area being covered.



All students should participate in the Evaluation discussion to encourage the use of mathematical language, logical reasoning and reflection on that which they have completed.

Name: _____

Knowledge

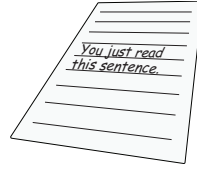
Match each event to its chance of occurring. Then add 2 events for each category.



It rains actual cats and dogs



You sleep tonight



You just read this sentence



You will go ice skating this afternoon



You will watch TV tonight



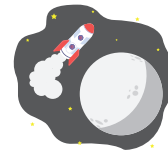
You will go for a bicycle ride this week



You will have vegetables with your dinner



You will see a cruise ship this week



You will fly to the moon today



You will eat ice cream this week



You will receive a pet dog this year



A cat will talk



You will go to a celebration this month



You will play this afternoon

| | | | | |
|------------|----------|---------|--------|-----------|
| Impossible | Unlikely | Equally | Likely | Certainly |
|------------|----------|---------|--------|-----------|

2 Impossible Events:

2 Unlikely Events:

2 Events with a 50% chance of occurring:

2 Events likely to occur:

2 Events that will occur:



Let's Try This Again



Progress To Comprehension

Name: _____

Comprehension

Play the game "What are my Chances"

What are my Chances

Students Will Need:

- Two coins per group (Up to four per group).
- A score card.

| | Player 1 | Player 2 |
|-------|----------|----------|
| Score | | |
| Total | | |

How to Play:

Game 1: One coin is flipped and every time a head comes up, that student scores a point but they score nothing for tails. Students discuss how fair this game is.

Game 2: Two coins are flipped and this time one point is scored for two heads or two tails but no points are scored for a mixed pair. Students again highlight the un/fairness of this game and their likelihood of winning.

Game 3: Again two coins are flipped but this time if the two are the same, such as two heads, two points are scored. If the two coins are different, no points are scored. Students again outline the fairness of the game and ways in which their chance of winning could be improved such as scoring one point for a mixed pair.



Let's Try This Again



Progress To Application

Name: _____

Application

Predict each of the following events and then test them to see how accurate you were.

1. Toss a regular coin 20 times and have it land on heads.

| | | | |
|----------------|---------------|----------------|---------------|
| Toss 1 | Heads / Tails | Toss 11 | Heads / Tails |
| Toss 2 | Heads / Tails | Toss 12 | Heads / Tails |
| Toss 3 | Heads / Tails | Toss 13 | Heads / Tails |
| Toss 4 | Heads / Tails | Toss 14 | Heads / Tails |
| Toss 5 | Heads / Tails | Toss 15 | Heads / Tails |
| Toss 6 | Heads / Tails | Toss 16 | Heads / Tails |
| Toss 7 | Heads / Tails | Toss 17 | Heads / Tails |
| Toss 8 | Heads / Tails | Toss 18 | Heads / Tails |
| Toss 9 | Heads / Tails | Toss 19 | Heads / Tails |
| Toss 10 | Heads / Tails | Toss 20 | Heads / Tails |

2. Roll a die and have in land on a number that is 4 or larger.

| Roll | Was it a 4, 5 or 6 | Roll | Was it a 4, 5 or 6 |
|----------------|---------------------------|----------------|---------------------------|
| Roll 1 | Yes / No | Roll 11 | Yes / No |
| Roll 2 | Yes / No | Roll 12 | Yes / No |
| Roll 3 | Yes / No | Roll 13 | Yes / No |
| Roll 4 | Yes / No | Roll 14 | Yes / No |
| Roll 5 | Yes / No | Roll 15 | Yes / No |
| Roll 6 | Yes / No | Roll 16 | Yes / No |
| Roll 7 | Yes / No | Roll 17 | Yes / No |
| Roll 8 | Yes / No | Roll 18 | Yes / No |
| Roll 9 | Yes / No | Roll 19 | Yes / No |
| Roll 10 | Yes / No | Roll 20 | Yes / No |



Let's Try This Again



Progress To Analysis

Name: _____

Analysis

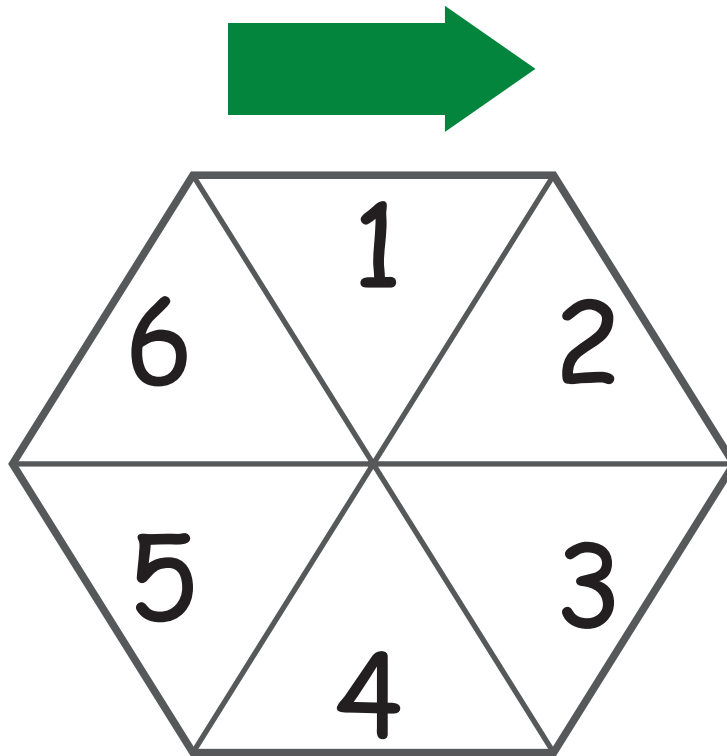
Use a split pin, the arrow and the hexagonal spinner at the bottom of the page to complete the table.

| Spin | Number Spun | Spin | Number Spun |
|---------|-------------|---------|-------------|
| Spin 1 | | Spin 11 | |
| Spin 2 | | Spin 12 | |
| Spin 3 | | Spin 13 | |
| Spin 4 | | Spin 14 | |
| Spin 5 | | Spin 15 | |
| Spin 6 | | Spin 16 | |
| Spin 7 | | Spin 17 | |
| Spin 8 | | Spin 18 | |
| Spin 9 | | Spin 19 | |
| Spin 10 | | Spin 20 | |

How often did you spin 6?

What could you do to increase your chances of spinning a 6?

Test your idea and see if it works.



Let's Try This Again



Progress To Synthesis

Name: _____

Synthesis

In Analysis you suggested ways that you can weight a spinner to help you land on your chosen number. Suggest and test ways that you can “cheat” at each of these activities to better your “chance” of winning.

1. Score a centre circle in darts.



2. Rolling a 6 with 1 die.



3. Rolling a double on 2 die.



4. Drawing a red card from a standard deck.



Let's Try This Again



Progress To Evaluation

Evaluation

The following questions and activities are provided as a starting point for fun discussions related to Probability and Chance. During these conversations students will have an opportunity to use appropriate mathematical language in its correct context, to engage in reflection on the Probability and Chance activities they have completed and to use logical reasoning to tie their in-class mathematics to its everyday context.



When playing Powerball there is a 1 in 134, 490, 400 chance of winning Division 1. Is it worth playing?



Why do so many people buy tickets?



What is the difference between a skill tester machine like the claw toy grabber machine and a chance machine like a pokies machine.



If you won \$100 and were old enough should you take it to the casino and try to double it?



Play a class game using a dice where if a student team rolls 1 or 2 they win but if they roll 3, 4, 5 or 6 you win. Is this fair and why would anyone play this game?

