

Order Chance, Events Affecting the Chance of Other Events.

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Identify everyday events where one cannot happen if the other happens; and where the chance of one occurring will not be affected by the occurrence of the other	page 8

Differentiate and Assess

Not every student will be ready to investigate this concept at this Level and so we will need to differentiate to ensure every student is learning at their leading edge. Select the Differentiate button on this screen.

Integrate

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding. Select the Integrate button on this screen.

Intervene

Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention. Select the Intervention button on this screen.

ORDER CHANCE, EVENTS AFFECTING THE CHANCE OF OTHER EVENTS.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

RESOURCES: DATA DISPLAYED IN TABLES, COLUMN GRAPHS WITH ONE-TO-MANY CORRESPONDENCE, PENCIL, PAPER

WHAT COULD WE DO?

Children:

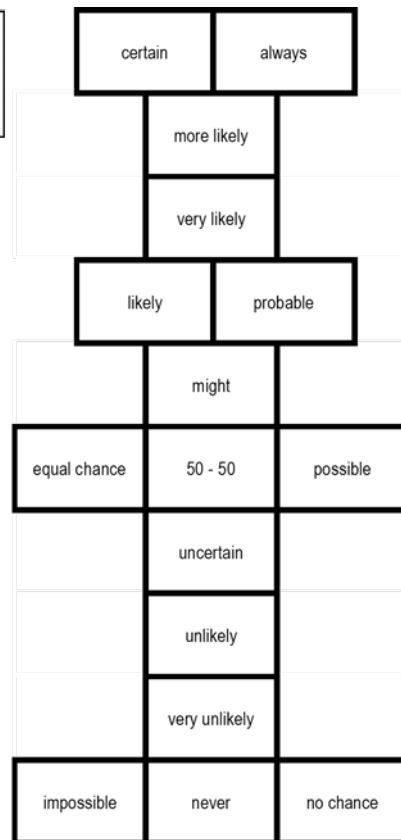
- Place the chance words in order from most likely to least likely, for example,
- Describe the likelihood of events occurring.
- Place events in order of likelihood, for example,

Ellen wins a prize in a competition in which she has half of the tickets.

Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.

Harry will roll a 6 with a standard six-sided die.

The arrow will stop on red on this spinner.



WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

Children

ask one another questions about asking questions using the language of chance, and using the data to answer the questions, for example:

- Let's place the chance words in order from most likely to least likely.
- How could we describe the likelihood of this event occurring?
- How could we order these events by their likelihood?

ORDER CHANGE, EVENTS AFFECTING THE CHANCE OF OTHER EVENTS.

EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

WHAT COULD WE DO?

Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.

Record, for example, chance

Record, for example, data

Display a card with an event recorded on it, [for example](#),

Ellen wins a prize in a competition in which she has half of the tickets.	Donald wins a prize in a competition in which he has all of the tickets.	Sally wins a prize in a competition in which she has no tickets.	It will be sunny tomorrow.
A bus will drive past in the next hour.	Lilly chooses a red apple from a bag with 8 red apples and 5 green apples.	Harry will roll a 6 with a standard six-sided die.	Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.
Fred buys a carton of eggs from a furniture store.	The arrow will stop on red on this spinner.	The arrow will stop on red on this spinner.	The arrow will stop on red on this spinner.

WHAT LANGUAGE COULD WE USE TO EXPLAIN AND ASK QUESTIONS?

- ▶ Today brings an investigation about chance.
- ▶ What do you know about chance?
- ▶ Talk about chance with a friend.
- ▶ Is anyone ready to share what they are thinking about chance?

- ▶ We've investigated chance.
- ▶ And we found that chance tells us how likely it is that an event will happen.
- ▶ We've investigated data.
- ▶ And we found that data is information.
- ▶ We found that we can use data to work out the chance of an event occurring.
- ▶ **Today we're going to order the chance of events occurring from most likely to least likely.**

- ▶ Here we have some cards with events recorded on them.

Display a card with an event recorded on it, [for example](#),

never	equal chance	no chance	possible
always	probable	impossible	certain
likely	unlikely	more likely	50 - 50
uncertain	might	very likely	very unlikely

Place 'certain' at the top.

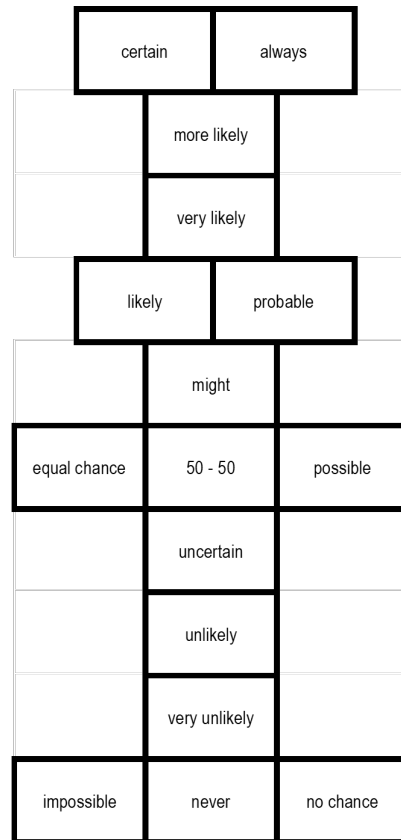
Place 'impossible' at the bottom.

Place 'equal chance' in the centre.

Place more likely highest, then very likely, then likely.

Place more very unlikely lowest, then unlikely?

Continue placing the chance words in order from most likely to least likely, for example,



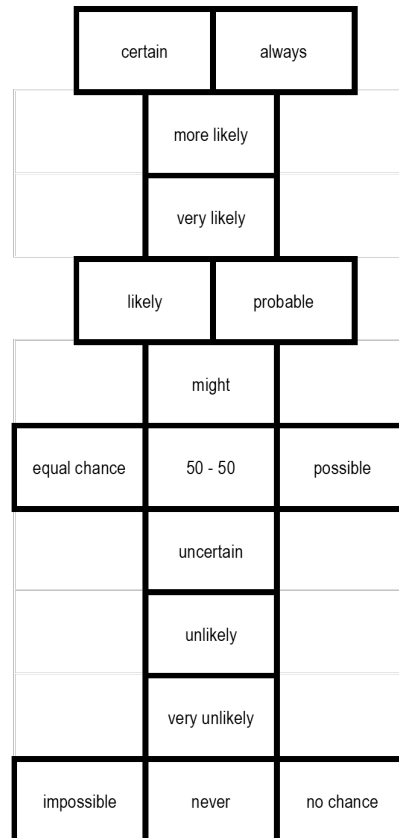
- ▶ And here we have some chance words.
- ▶ Let's place the chance words in order from most likely to least likely.
- ▶ What chance word is the most likely?
- ▶ Is certain the most likely?
- ▶ Does certain mean it will definitely happen?
- ▶ Let's place certain at the top.
- ▶ What chance word means least likely?
- ▶ Is impossible, least likely?
- ▶ Does impossible mean it cannot happen?
- ▶ Let's place impossible at the bottom.
- ▶ Where would equal chance go?
- ▶ Would equal chance go in the centre?
- ▶ Now we have likely, more likely and very likely.
- ▶ What order would these chance words go in?
- ▶ Could we place more likely highest, then very likely, then likely?
- ▶ Now we have unlikely, and very unlikely.
- ▶ What order would these chance words go in?
- ▶ Could we place very unlikely lowest, then unlikely?
- ▶ Could we continue placing these chance words from most likely to least likely?

Select one chance event card, for example,

Ellen wins a prize in a competition in which she has half of the tickets.

Place the 'equal chance' event card in the centre of the line, for example,

Ellen wins a prize in a competition in which she has half of the tickets.



▶ Let's select one event and describe the chance of the event occurring.

▶ What chance word could we use to describe the likelihood of this event happening?

▶ Is it possible or impossible that Ellen will win?

▶ Is it possible?

▶ Is it certain or uncertain that Ellen will win?

▶ Is it uncertain?

▶ Is it likely or unlikely that Ellen will win?

▶ Is it equally likely and unlikely?

▶ Does Ellen have an equal chance of winning and not winning?

▶ Does Ellen have a 50-50 chance of winning and not winning?

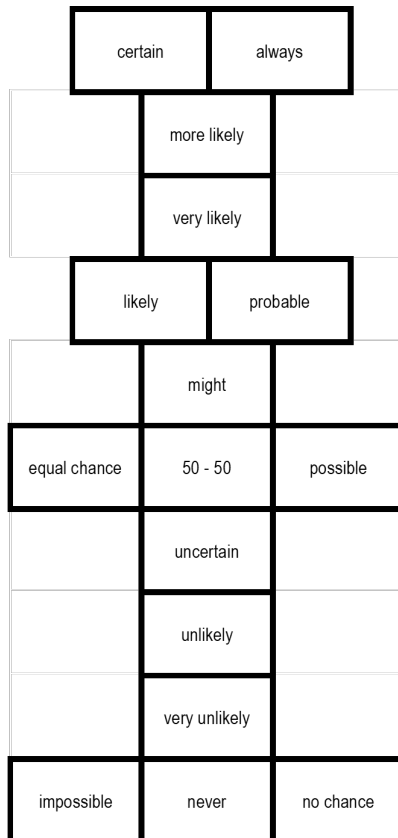
▶ Let's place this chance event card in the middle of our line, next to equal chance, and 50-50..

Select another chance event card, for example,

Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.

Ellen wins a prize in a competition in which she has half of the tickets.

Place the 'certain' chance event card at the top, for example,




Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.

▶ Let's select another chance event card

- ▶ What chance word could we use to describe the likelihood of this event happening?
- ▶ Is it possible or impossible that Ellen will roll 1, 2, 3, 4, 5, or 6 with a standard six-sided die?
- ▶ Is it possible that Ellen will roll 1, 2, 3, 4, 5, or 6 with a standard six-sided die?
- ▶ Is it certain or uncertain that Ellen will roll 1, 2, 3, 4, 5, or 6 with a standard six-sided die?
- ▶ Is it certain that Ellen will roll 1, 2, 3, 4, 5, or 6 with a standard six-sided die?
- ▶ Will Ellen always roll 1, 2, 3, 4, 5, or 6 with a standard six-sided die?
- ▶ Let's place this chance event card at the top of our line next to certain and always.

Select another chance event card,

The arrow will stop on red on this spinner.




for example,

Ellen wins a prize in a competition in which she has half of the tickets.

Place the 'impossible' chance event card at the bottom, for example,

Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.

The arrow will stop on red on this spinner.



certain		always	
more likely			
very likely			
likely		probable	
might			
equal chance	50 - 50	possible	
uncertain			
unlikely			
very unlikely			
impossible	never	no chance	

Select another chance event card, for example,

Harry will roll a 6 with a standard six-sided die.

▶ Let's select another chance event card

- ▶ What chance word could we use to describe the likelihood of this event happening?
- ▶ Is it possible or impossible that the arrow will stop on red on this spinner?
- ▶ Is it impossible that the arrow will stop on red on this spinner?
- ▶ Let's place this chance event card at the bottom of our line next to impossible

Place the 'unlikely' chance event card at the top, for example,

Ellen wins a prize in a competition in which she has half of the tickets.

Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.

Harry will roll a 6 with a standard six-sided die.

The arrow will stop on red on this spinner.



	certain	always	
		more likely	
		very likely	
	likely	probable	
		might	
equal chance	50 - 50	possible	
		uncertain	
		unlikely	
		very unlikely	
impossible	never	no chance	

Display a standard six-sided die, for example,



▶ Let's select one event and describe the chance of the event occurring.

▶ What chance word could we use to describe the likelihood of this event happening?

▶ Is it possible or impossible that Harry will roll a 6 with a standard six-sided die?

▶ Is it possible?

▶ Is it certain or uncertain that Harry will roll a 6 with a standard six-sided die?

▶ Is it uncertain?

▶ Is it likely or unlikely that Harry will roll a 6 with a standard six-sided die?

▶ Is it unlikely?

▶ Let's place this chance event card between the equally likely event and the impossible event, next to unlikely.

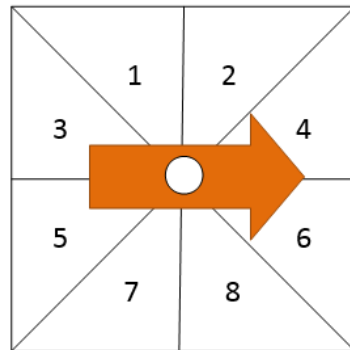
▶ Could we continue placing event cards in order of their chance of occurring?

Record, for example, 'In one roll, only one outcome is possible'.

Record, for example, 'It is not possible to roll a 4 and a 6 in one roll'.

Record, for example, 'In 1 roll of a die, one outcome cannot occur if another occurs'.

Display a spinner, for example,



Record, for example, 'in one spin, only one outcome is possible'

Record, for example, 'It is not possible to spin a 4 and a 6 in one spin'.

► **Today we're going to investigate the occurrence of events.**

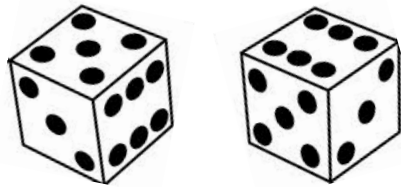
- Here we have a die.
- What outcomes are possible if we roll the die?
- Are the possible outcomes 1, 2, 3, 4, 5 or 6?
- How many of these outcomes are possible with one roll of the die?
- Is only one of these outcomes possible each time we roll the die?

- Is it possible to roll a 6 and a 4 in the same roll?
- Is it impossible to roll a 6 and a 4 in the same roll?
- If 6 is rolled, are all other numbers impossible in the same roll?
- If one of these numbers occurs in 1 roll, are all other numbers impossible in the same roll?
- How could we describe the possible outcomes with each roll of this die?
- Could we say that in 1 roll of a die, 4 cannot occur if 6 occurs?
- Could we say that in 1 roll of a die, one outcome cannot occur if another occurs?

- When else does one outcome occurring mean that no other outcome can occur?
- What about with spinners?
- What outcomes are possible if we spin the arrow once?
- Are the possible outcomes 1, 2, 3, 4, 5, 6, 7 or 8?
- How many of these outcomes are possible with one spin of the arrow?
- Is only one of these outcomes possible each time we spin the arrow?
- Is it possible to spin a 6 and a 4 in the same spin?

Record, for example, 'In 1 spin of the arrow, one outcome cannot occur if another occurs'.

Display 2 dice, for example,



Record, for example, 'the outcomes of a roll of each die is 1, 2, 3, 4, 5 or 6'

Record, for example, 'Getting a 6 on the roll of one die does not affect the chance of getting 6 on the second die'

- ▶ Is it impossible to spin a 6 and a 4 in the same spin?
- ▶ If 6 is spun, are all other numbers impossible in the same spin?
- ▶ If one of these numbers occurs in 1 spin, are all other numbers impossible in the same spin?
- ▶ How could we describe the possible outcomes with each spin of this arrow?
- ▶ Could we say that in 1 spin of the arrow, 4 cannot occur if 6 occurs?
- ▶ Could we say that in 1 spin of the arrow, one outcome cannot occur if another occurs?

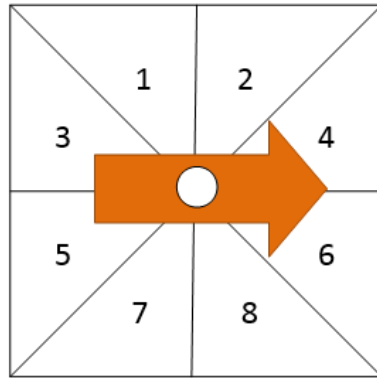
- ▶ So we've looked at outcomes that cannot occur if another outcome occurs
- ▶ Could we also look at outcomes that are not affected by the occurrence of another event? Let's investigate!
- ▶ Here we have 2 dice
- ▶ What outcomes are possible if we roll each die one time?
- ▶ Are the possible outcomes on each die 1, 2, 3, 4, 5, or 6?
- ▶ If we get a 6 on the first die, can we still get a 6 on the second die?
- ▶ Does getting a 6 on the first die affect our chance of getting a 6 on the second die?
- ▶ Does getting a 6 on the first die affect our chance of getting any number on the second die?

- ▶ How could we describe these outcomes?
- ▶ If 6 is the outcome of the roll of the first die, what outcomes could we get from the roll of the second die?
- ▶ Could we still get 1, 2, 3, 4, 5 or 6 on the second die?

Record, for example, 'the outcome of the roll of one die does not affect the outcome of the roll of another die'

Display a spinner, for example,

Record, for example, 'the outcome of each spin is 1, 2, 3, 4, 5, 6, 7 or 8'



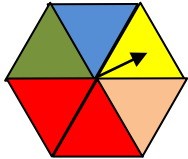
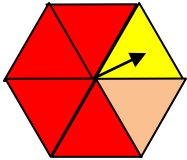
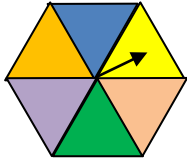
Record, for example, 'Getting a 6 on one spin does not affect the chance of getting 6 on the second spin'

Record, for example, 'the outcome of one spin does not affect the outcome of another spin'

- ▶ Could we say that when we roll the first die, the outcome does not affect the outcome of the roll of the second die?
- ▶ Could we say that the outcome of the roll of the second die is not affected by the outcome of the roll of the first die?

- ▶ What about with spinners?
- ▶ What outcomes are possible if we spin the arrow?
- ▶ Are the possible outcomes 1, 2, 3, 4, 5, 6, 7 or 8?
- ▶ If we spin the arrow twice, is each of these outcomes possible each time?
- ▶ Is it possible for the arrow to stop at a 6 in both spins?
- ▶ If we get a 6 on the first spin, can we still get a 6 on the second spin?
- ▶ Does getting a 6 on the first spin affect our chance of getting a 6 on the second spin?
- ▶ Does getting a 6 on the first spin affect our chance of getting any number on the second spin?

- ▶ How could we describe these outcomes?
- ▶ If 6 is the outcome of the first spin, what outcomes could we get from the second spin?
- ▶ Could we still get 1, 2, 3, 4, 5, 6, 7 or 8 on the second spin?
- ▶ Could we say that when we spin the arrow, the outcome does not affect the outcome of the second spin?
- ▶ Could we say that the outcome of the second spin is not affected by the outcome of the first spin?

<p>Ellen wins a prize in a competition in which she has half of the tickets.</p>	<p>Donald wins a prize in a competition in which he has all of the tickets.</p>	<p>Sally wins a prize in a competition in which she has no tickets.</p>	<p>It will be sunny tomorrow.</p>
<p>A bus will drive past in the next hour.</p>	<p>Lilly chooses a red apple from a bag with 8 red apples and 5 green apples.</p>	<p>Harry will roll a 6 with a standard six-sided die.</p>	<p>Alice will roll a 1, 2, 3, 4, 5 or 6 with a standard six-sided die.</p>
<p>Fred buys a carton of eggs from a furniture store.</p>	<p>The arrow will stop on red on this spinner.</p> 	<p>The arrow will stop on red on this spinner.</p> 	<p>The arrow will stop on red on this spinner.</p> 

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