

ROLL THE DICE!

Lesson plans

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UNIT 1- MAKING HYPOTHESES: LESSON 1- CAN WE PREDICT THE FUTURE? LESSON 2- HYPOTHESISING			
LEVEL	6 th grade	TIMING	L1: one hour L2: one hour
TRANSFERABLE SKILLS			
<ul style="list-style-type: none"> Mathematical skills: <ul style="list-style-type: none"> Ask questions in relation to a given situation or problem. Plan and develop resolution strategies. Verify the solutions. Communicate processes and results to others using appropriate mathematical language. Mathematically think (induce, deduce) and justify their own decisions and choices of processes and techniques. Linguistic skills: <ul style="list-style-type: none"> Interact with other people. Relate observations, explanations, thoughts, opinions and develop argument. Autonomy, initiative and decision taking: <ul style="list-style-type: none"> Create, develop and assess individual and collective activities with confidence, responsibility and critical thinking. 			
TEACHING OBJECTIVES (what I plan to teach)			
<ul style="list-style-type: none"> Introduce the notion of random, predictable and non-predictable events. Introduce the notion of certain, possible and impossible events. Present experiments as a way to contrast hypotheses. 			
LEARNING OUTCOMES			
CONTENT: what pupils will know	COGNITION: what pupils will be able to do	CULTURE: what pupils will be aware of	
<ul style="list-style-type: none"> Understand what random, non predictable and predictable events are. Understand what certain, possible and impossible events are. Relate the processes of making hypotheses, designing experiments, carrying them out and comparing results to predictions. 	<ul style="list-style-type: none"> Distinguish between and list predictable and non predictable events. Predict the outcomes of given events. Construct a Circle Mind Map with the important information about probability. Make simple hypotheses about small experiments with dice, spinners, coins, coloured balls and cards. Design simple experiments to prove hypotheses. Contrast hypotheses with the results from small experiments. 	<ul style="list-style-type: none"> Understand that a FL may be used to learn. Respect others' ideas. Understand that there's not always a unique correct answer to a question or problem. 	

COMMUNICATION		
Language of	Language for	Language through
<p>Use of the simple future to express a hypothesis or a prediction.</p> <p>Vocabulary L1: predict, event, impossible, certain.</p> <p>Vocabulary L2: hypothesis, rolling a dice, tossing a coin, spinning a spinner, picking a ball, picking a card.</p>	<p>Making the list of predictable/unpredictable: We can predict ... We cannot predict ... I agree/I don't agree What else? How do you say...in English? /What does ... mean?</p> <p>Making hypotheses: Our hypothesis is that if we... we will... Because there are..../there is... We are very sure/We are not very sure We bet ... points.</p> <p>Group working: Who starts? It's my turn. Write down; Can you repeat, please?; Wait a second. Can I...? Let's/Why don't we...? Don't shout; keep your voice down; speak English What do you think? I think... I agree; I don't agree; Me too; Good idea!</p>	<p>Use of bilingual dictionaries is expected during L1, since pupils have to come with an open list of items.</p> <p>Feedback from teacher when asked in English should also be provided.</p> <p>During group work and interaction among pupils, some expressions may arise which should be considered for future group activities.</p>
ASSESSMENT CRITERIA		
<ul style="list-style-type: none"> • Distinguishing random/predictable/non-predictable events. • Guessing and making hypotheses. Testing them. • Coherently expressing the process leading to the solution of a problem. • Taking active part in class activities. • Using FL to communicate. 		

UNIT 2- WHAT'S PROBABILITY?: LESSON 3- UNCOVERING PROBABILITY LESSON 4- PROBABILITY SCALE			
LEVEL	6th grade	TIMING	L3: one hour L4: one hour
TRANSFERABLE SKILLS			
<ul style="list-style-type: none"> Mathematical skills: <ul style="list-style-type: none"> Ask answers in relation to a given situation or problem. Plan and develop resolution strategies. Verify the solutions. Communicate processes and results to others using appropriate mathematical language. Mathematically think (induce, deduce) and justify their own decisions and choices of processes and techniques. Linguistic skills: <ul style="list-style-type: none"> Interact with other people. Relate observations, explanations, thoughts, opinions and develop argument. Information handling and digital competence: <ul style="list-style-type: none"> Access and communicate information using different supports including ICT tools to learn. 			
TEACHING OBJECTIVES (what I plan to teach)			
<ul style="list-style-type: none"> Introduce the calculation of probability. Present the probability scale and that all probabilities may be expressed as a decimal between 0 and 1, an equivalent fraction or a percentage. Present the vocabulary to express likelihood. 			
LEARNING OUTCOMES			
CONTENT: what pupils will know	COGNITION: what pupils will be able to do	CULTURE: what pupils will be aware of	
<ul style="list-style-type: none"> Understand and apply the formula to calculate probability. Place probability of an event in a scale from 0 to 1. Relate the different forms of expressing probability: fractions, decimals and percentages. Understand and use vocabulary to express the likelihood of an event. 	<ul style="list-style-type: none"> Apply a mathematical formula Observe an event and get information from it. Collect data from practice. Construct a Circle Mind Map with the important information about probability. Justify decisions and choices. Understand information to complete a task. 	<ul style="list-style-type: none"> Understand that a FL may be used to learn. Respect others' ideas. 	

COMMUNICATION		
Language of	Language for	Language through
<p>Probability calculation vocabulary: fraction, numerator, denominator, favourable outcomes, possible outcomes, 1 in 6, 1 over 6, 1 out of 6</p> <p>Likelihood vocabulary: impossible, unlikely, not likely, even chance, likely, very likely, certain events.</p> <p>Fractions, decimals and percentages (percent).</p>	<p>Pair and group working: Who starts?/It's my turn. Write down; Can you repeat, please?; Wait a second. Can I...? Let's/Why don't we...? Don't shout; keep your voice down; speak English What do you think? I think... I agree; I don't agree; Me too; Good idea! Let me write I don't know Can you write this? Can you see?</p> <p>Language for ordering: first comes, then, after... 1st, 2nd, 3rd, 4th...</p> <p>Working on the computers: Switch it on/off the laptop; open; close; save; click; folder; file; name;</p> <p>Statements on the washing line: Use of future: It will..., I will..., we will... Get examples from likelihood statements on the board. They will also have some in the web pages they have been working with.</p>	<p>Feedback from teacher when asked in English should be provided.</p> <p>Language for asking for help may arise during the work with materials and the pc's, specially related to software and web pages; it should be considered for future sessions.</p> <p>During L4, we can expect pupils to need scaffolding to write their statements for the washing line, but some language may "escape" from the planned scaffold: be prepared to deal with pupils "dynamic" language needs.</p> <p>Use of bilingual dictionaries is expected during L4, since pupils have to come with an open list of items.</p> <p>During group work and interaction among pupils, some expressions may arise which should be considered for future group activities.</p>
ASSESSMENT CRITERIA		
<ul style="list-style-type: none"> • Using the formula to calculate probability and the vocabulary to express likelihood. • Recognising relations between decimals, fractions and percentages. • Coherently expressing the process leading to the solution of a problem. • Taking active part in class activities. • Using FL to communicate. 		

UNIT 3- UNDERSTANDING PROBABILITY: LESSON 5- A SNAIL RACE LESSON 6- ARE YOU SUPERSTITIOUS? LESSON 7- LET'S CHEAT A BIT!					
LEVEL	6 th grade	TIMING	L5: two hours	L6: one hour	L7: 1 hour
TRANSFERABLE SKILLS					
<ul style="list-style-type: none"> Mathematical skills: <ul style="list-style-type: none"> Interpret and put into practice processes of mathematical reasoning leading to solving the problems and questions in everyday situations. Communicate processes and results to others using appropriate mathematical language. Mathematically think (induce, deduce) and justify their own decisions and choices of processes and techniques. Linguistic skills: <ul style="list-style-type: none"> Interact with other people. Relate observations, explanations, thoughts, opinions and develop argument. Information handling and digital competence: <ul style="list-style-type: none"> Transform information into knowledge, activating thinking skills. 					
TEACHING OBJECTIVES (what I plan to teach)					
<ul style="list-style-type: none"> Help understand the applications of probability to real life situations. Use of tools to organise and analyse data collected from events and small experiments (Cartesian coordinates). Show the existence of different beliefs through superstitions related to features of different cultures. Help identify non-equally probable outcomes from an event. 					
LEARNING OUTCOMES					
CONTENT (what pupils will know)	COGNITION (what pupils will be able to do)			CULTURE (what pupils will be aware of)	
<ul style="list-style-type: none"> Understand the superstitions beliefs in the UK. Use vocabulary to express the likelihood of an event. Recognise probability 	<ul style="list-style-type: none"> Make hypotheses and compare them with the results of small experiments. Observe an event and get information from it. Collect and organise data from practice. Analyse data from practice. Construct a Circle Mind Map with the important information about probability. Justify decisions and choices. 			<ul style="list-style-type: none"> Understand that a FL may be used to learn. Respect others' ideas. Be aware of differences and similarities in beliefs in different cultures. 	

<p>implications in real life.</p> <ul style="list-style-type: none"> Identify the outcomes of non-equally probable events. 	<ul style="list-style-type: none"> Understand information to complete a task. Compare the different beliefs in superstitions for different cultures. Synthesise information to be able to explain it to others. Apply theoretical knowledge to problem solving activities related to real life situations. Express their own beliefs about superstition. Extract information from a text to fill in a grid. Build conclusions from discussing with peers. 	<ul style="list-style-type: none"> Understand the role of chance and probability in real life, including their personal choices.
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COMMUNICATION

Language of	Language for	Language through
<p>Probability calculation vocabulary: fraction, numerator, denominator, favourable outcomes, possible outcomes, 1 in 6, 1 over 6, 1 out of 6</p> <p>Vocabulary for operations: addition, subtraction, add, plus, minus, take away, equals.</p> <p>Vocabulary related to probability: event, probability, impossible, possible, more probable, less probable, high probability, low probability, unlikely, not likely, even chance, likely, very likely, certain, hypothesis, roll a die, spin a spinner, toss a coin, section, equally probable, non equally probable, fair/unfair</p> <p>Use of the simple future to express an hypothesis or a prediction.</p>	<p>Pair and group working: Who starts?/It's my turn. Write down; Can you repeat, please?; Wait a second. Can I...? Let's/Why don't we...? Don't shout; keep your voice down; speak English What do you think? I think... I agree; I don't agree; Me too; Good idea! Let me write I don't know Can you write this? Can you see?</p> <p>Choosing/explaining reasons:</p> <ul style="list-style-type: none"> I chose ... because ... <ul style="list-style-type: none"> It's my favourite number I like it It's got a high probability <p>Playing:</p> <ul style="list-style-type: none"> It's my/your turn. Roll the dice. Move forward. <p>Move backwards; don't cheat; you cheated!</p>	<p>Feedback from teacher when asked in English should be provided.</p> <p>Some extra language not provided by the planned scaffolding may be needed to write the pieces of advice, and also when justifying the lane choice.</p> <p>During pair and group work and interaction among pupils, some expressions may arise which should be considered for future group activities.</p>

<p>Vocabulary related to luck: good luck, bad luck, lucky, unlucky It's lucky/unlucky It brings you good/bad luck</p>	<p>Asking and answering questions:</p> <ul style="list-style-type: none"> • Which number was the winner? Why? • Which number was the slowest? <p>Was there a "losing" lane? Why?</p> <p>Giving advice:</p> <ul style="list-style-type: none"> • You should choose... because... <ul style="list-style-type: none"> ○ X always wins ○ X never loses ○ X is the best ○ X appears lots of times ○ X has got a high probability ○ X's probability is very high <p>Making hypotheses and contrasting them:</p> <ul style="list-style-type: none"> • Our hypothesis is that if we... we will... • Because there are.../there is... • Our hypothesis was correct/wrong because the results are the same as/different from our predictions. <p>Texts: there may be new words in the texts, but visual aid is provided for the most difficult ones.</p> <p>Statements on superstitions: Three or four examples or statements about superstitions should be provided as a guide for ACT5.</p>	<p>Language not previously planned may be needed to write the statements about superstitions in ACT5. The use of bilingual dictionaries and feedback from the teacher will be required.</p>
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<p>ASSESSMENT CRITERIA</p>	
<ul style="list-style-type: none"> • Getting and understanding information from a written text. • Applying theoretical knowledge acquired. • Coherently expressing the process leading to the solution of a problem. • Taking active part in class activities. • Using FL to communicate. 	

UNIT 4 - IS IT ALL ABOUT BEING LUCKY?: LESSON 8- PREDICTIONS FROM STATISTICS LESSON 9- PROBABILITY IS NOT A GAME!			
LEVEL	6 th grade	TIMING	L1: one hour L2: three-four hours
TRANSFERABLE SKILLS			
<ul style="list-style-type: none"> Mathematical skills: <ul style="list-style-type: none"> Ask questions in relation to a given situation or problem. Plan and develop resolution strategies. Verify the solutions. Communicate processes and results to others using appropriate mathematical language. Mathematically think (induce, deduce) and justify their own decisions and choices of processes and techniques. Linguistic skills: <ul style="list-style-type: none"> Interact with other people. Relate observations, explanations, thoughts, opinions and develop argument. Autonomy, initiative and decision taking: <ul style="list-style-type: none"> Create, develop and assess individual and collective activities with, confidence, responsibility and critical thinking. Learning to learn: <ul style="list-style-type: none"> Gain, process and assimilate new knowledge and skills as well as seek and make use of guidance. Apply study skills that include strategic thinking and cooperation and self-evaluation skills. 			
TEACHING OBJECTIVES (what I plan to teach)			
<ul style="list-style-type: none"> Introduce statistics as a tool to predict “a priori” unpredictable events. Guide the design of a small experiment to collect and analyse data to predict. Show the role of chance and probability in board games. Present Snakes and Ladders and its history. Guide the design and creation of a game as a final activity for the unit. 			
LEARNING OUTCOMES			
CONTENT: what pupils will know	COGNITION: what pupils will be able to do	CULTURE: what pupils will be aware of	
<ul style="list-style-type: none"> Understand the role of statistics to make predictions. 	<ul style="list-style-type: none"> Predict the outcomes of given events. Construct a Circle Mind Map with the important information about probability. Make simple hypotheses about small experiments. 	<ul style="list-style-type: none"> Understand that a FL may be used to learn. Respect others' ideas. 	

<ul style="list-style-type: none"> • Understand the process to design a small experiment. • Understand the rules from some board games and the role probability plays in them. 	<ul style="list-style-type: none"> • Design simple experiments to prove hypotheses and collect data. • Discuss the features a good board game should have. • Analyse data to contrast hypotheses with the results from small experiments. • Design and create a game to show understanding of how probability works. • Assess one's own, group and peer's work. 	<ul style="list-style-type: none"> • Understand that there's not always a unique correct answer to a question or problem. • Know differences and similarities in games around the world. • Know some features of Hinduism and its link to a popular British game. • Understand the role of statistics in the prediction of "a priori" non predictable events.
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COMMUNICATION

Language of	Language for	Language through
<p>All language worked during the whole unit Roll the Dice! Vocabulary related to probability, probability calculation, hypothesising, games, fairness, use of future, etc.</p> <p>Vocabulary related to good and bad actions: help your parents, help a friend, share games, respect others, tell the truth, be kind/tell lies, swear, be mean to friends</p>	<p>Making predictions: What's the probability of when/if I(or we)... The probability of ... when/if I (or we) is... Possible outcome verbs: scoring, getting, lasting, being on target, guessing...</p> <p>Collecting data: Wait; ready; start; go; stop; repeat it; write down; numbers (for some pupils)</p> <p>Group working: Why don't we write/draw/use/colour/add.... Who starts? It's my turn. Write down; Can you repeat, please?; Wait a second. Can I...? Let's/Why don't we...? Don't shout; keep your voice down; speak English What do you think? I think... I agree; I don't agree; Me too; Good idea!</p>	<p>During group work and interaction among pupils, some expressions may arise which should be considered for future group activities.</p> <p>During S2-ACT5 some language not planned may be needed to talk about good things and bad things.</p> <p>Feedback from teacher when asked in English should be provided.</p> <p>Use of bilingual dictionaries.</p> <p>We can expect pupils to need some scaffolding to write their statements for their predictions, but some language may "escape" from the planned scaffold: be prepared to deal with pupils "dynamic" language needs.</p>

	<p>Assessing peers' work: What do you think? I think... I agree; I don't agree; me too; Good idea! I like it/It's original/I like the drawings, the colours, the sentences, the handwriting It follows the rules/the instructions It's got a tick/It hasn't got a tick</p> <p>Good/bad things: Display the list created with the whole group. Provide some more examples: helping your parents, helping a friend, sharing games, respecting others/telling lies, swearing, being mean to friends</p> <p>Designing an experiment and collecting data: A written example is provided in the Notebook presentation.</p>	
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ASSESSMENT CRITERIA

- Applying the knowledge acquired.
- Designing a small experiment and carrying it out.
- Coherently expressing the process of creating a game.
- Taking active part in class activities.
- Using FL to communicate.