**MATHEMATICS STAGE 3**

**TEACHING AND LEARNING OVERVIEW**

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| TERM:  | WEEK: 2 | STRAND: Probability and Data | **SUB-STRAND:****Chance 1**  | **WORKING MATHEMATICALLY:** **MA3-1WM**  |
| **OUTCOMES: MA3-19SP**  | **Conducts chance experiments and assigns chance experiments and probabilities as values between 0 and 1 to describe their outcome** |
| **CONTENT:**  | **Recognise that probabilities range from 0 to 1.** * Establish that the sum of the probabilities of the outcomes of any chance experiment is equal to 1

**List outcomes of chance experiments involving equally likely outcomes and represent probabilities of those outcomes using fractions*** List all outcomes in chance experiments where each outcome is equally likely to occur
* Recognise that outcomes are described as equally likely when any outcome has the same chance of occurring as any other outcome
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| **ASSESSMENT FOR LEARNING****(PRE-ASSESSMENT)** | * Pre- assessment activity-IWB and worksheet <http://www.scootle.edu.au/ec/viewing/S5111/index.html>

This interactive resource is a game in which the student responds to questions about identifying the possible outcomes of everyday events and predicting their chances of occurring. The student chooses a question and then selects a matching tile that answers the question. Immediate feedback is given, and, when the answer is correct, the tile turns over to reveal part of a picture. There is an accompanying PDF worksheet that orders the chances of possible everyday events and investigates events that have an even chance of the desired outcome occurring. |
| WARM UP / DRILL | **IWB activity** The teacher asks one student to pick a number between 1 and 6. The children then predict how many times that number will be rolled if we were to roll the die 6 times. Carry out the experiment and discuss results. Repeat.**Dice Roller Simulator app** **Free** **✔** **✔** **Have you lost your dice? Are you bored with your dice and what to use virtual one? Here's an app for you – a nice and simple dice roller simulator useful for board games, deciding on something and anything you can think of. Features: – tap ROLL button or shake iPhone/iPod to roll a dice – 6 backgrounds and 3 dice colours to choose – roll up to 3 dices at once – nice rolling animation – you can't lose it :)** |
| TENS ACTIVITYNEWMAN’S PROBLEMINVESTIGATION  | A die has 6 sides numbered 1,2,3,4,5,6. What is the probability of rolling an odd number?<http://lrr.dlr.det.nsw.edu.au/Web/chance/probableChance/index.htm> |
| QUALITY TEACHING ELEMENTS | **INTELLECTUAL QUALITY** | **QUALITY LEARNING ENVIRONMENT** | **SIGNIFICANCE** |
| * Deep knowledge
* Deep understanding
* Problematic knowledge
* Higher-order thinking
* Metalanguage
* Substantive communication
 | * Explicit quality criteria
* Engagement
* High expectations
* Social support
* Students’ self-regulation
* Student direction
 | * Background knowledge
* Cultural knowledge
* Knowledge integration
* Inclusivity
* Connectedness
* Narrative
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| RESOURCES | Dice, IWB dice, Chance word s to be displayed for reference |

**TEACHING AND LEARNING EXPERIENCES**

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| WHOLE CLASS INSTRUCTION MODELLED ACTIVITIES | GUIDED & INDEPENDENT ACTIVITIES |
| * Review the metalanguage of chance and how to record likelihood of events on a probability line. Establish that the sum of the probabilities of the outcomes of any chance experiment is equal to 1. The teacher will draw a probability line on the board from 0-1. Together the class will decide what the likelihood is of rolling a 6, 5, 4 etc each roll and record their predictions on the probability line.
* Ask:

Was the game fair? Why do you think that?What total occurred most? Why? Was there an equal chance? * **Define and reinforce metalanguage** used in the unit eg. Chance, event, likelihood, certain, possible, likely, unlikely, impossible, experiment, outcome, probability. EQUAL CHANCE

**IWB-** <http://au.ixl.com/math/year-4/calculate-probability>Use interactive die to play Fair game and Running Race | LEARNING SEQUENCERemediationS2 or Early S3 | * Describes and compares chance events in social and experimental contexts.
* **WHOLE CLASS ACTIVITY** Calculate probability- <http://au.ixl.com/math/year-4/calculate-probability>
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| LEARNING SEQUENCES3 | * **IWB Foul Food** <http://lrr.dlr.det.nsw.edu.au/Web/chance/probableChance/index.htm>
* **Whole Class-Running Race-** Children are given a game board representing a 1000m track, with 6 counters (runners) at the starting line. <http://nswcurriculumsupport.wikispaces.com/file/view/Chance%201.pdf/474125816/Chance%201.pdf>
* **Whole Class Game- Fair Game**

The teacher challenges the students to a dice game. Two dice are rolled. If the total is 7 then the teacher wins. If the total is not 7 then the students win. Play the game 20 times recording the answers each time. Possible Questions include: Was the game fair?What total occurred most often? Why?* **Investigation**- Students to design a die so that particular outcomes are more likely. Play Running Race in pairs. Children to make predictions and test them by playing again with their new die.
* Assessment- Students are to record predictions made from their self -designed die on a probability line eg. The student may decide to place 1 on 5 faces and 2 on 1 face, therefore the chances of rolling a 1 will be very good. Ask students to explain their answer.
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| LEARNING SEQUENCEExtension Early S4 | * The teacher models how to express probability as a fraction. The students in pairs solve this problem and use a fraction to express probability.

A bag has 10 coloured balls. The balls are blue, red, green or yellow. Complete the number line to show the probability, expressed as a fraction, of taking out different combinations of balls. * **ACTIVITY 2- accessed from-**

<http://www.schools.nsw.edu.au/learning/7-12assessments/naplan/teachstrategies/yr2011/index.php?id=numeracy/nn_numb/nn_numb_s4e_11> |
| **EVALUATION & REFLECTION** | Student engagement: Achievement of outcomes:Resources: Follow up: |

* All assessment tasks should be written in **red** and planning should be based around developing the skills to complete that task.
* Assessment rubrics or marking scale should be considered.