STUDY
TIME

ABOUT THE STANDARD

◆ The exam will be focused on interpreting data and calculating probability to a variety of situations.

◆ Background knowledge in arithmetic (fractions etc) is required for this standard.

STRATEGIES FOR SUCCESS

◆ **Notice Key Graph Features.**
  ◇ Mean - All data values added together divided by the number of items added together
  ◇ Mode - Middle data value
  ◇ Median - Middle value in the data set. **The median is the best measure of average** because it doesn't get affected by outliers at the top.

◆ **Box and Wisker Graph**
  ◇ The box represents the **Interquartile Range**. This is the middle 50% of values within the data set.
  ◇ The upper line represents the **Upper Quartile**. 25% of data values are above this point on the graph.
  ◇ The lower line represents the **Lower Quartile**. 25% of data values are below this point on the graph.

◆ **Concentrate On key Words.**
  ◇ In your written answers you should be trying to include relate as many key concepts you have studied to the relevant data set as you can. The more relevant things you write about the more marks you get!!

◆ **Take Note Of Trends.**
  ◇ Is the data trending one way or another? **Draw in a trend line** to help you see general trends. Are sub-trends occurring within a larger trend? If the trend is becoming stronger, we can infer with more certainty that it will continue into the future.

◆ **Pay Attention to Problems and Assumptions.**
  ◇ Where did the sample data come from? Is it a good representation of the population? How does the question being asked to relate to the sample data and information showed? **Point out any problems**, say what they mean and suggest a way to overcome the problem eg "take a larger or more representative" sample.

◆ **Compare Key Features of Data Sets**
  ◇ You will have questions where you need to compare data sets and draw a conclusion. For example, do year 11 boys tend to do better in math exams than year 11 girls? You need to be referencing and comparing data from each set. Write about both things that are **similar** and things that are different.

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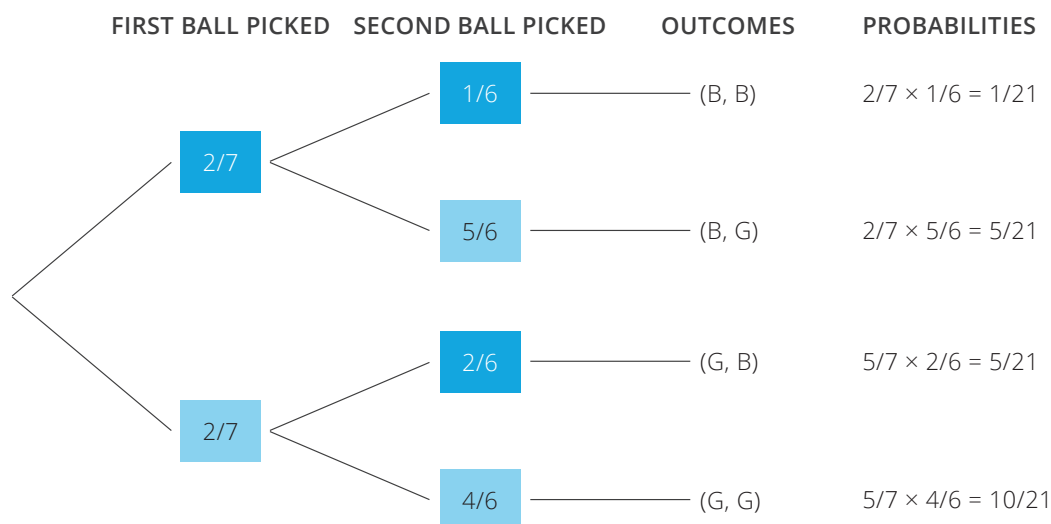
◆ **Relate to Context.**
  ◇ How does the data answer the given question? What else might we be able to infer from what we can see in the given data?

- **OR = '+' AND = '-'**
  - When you are asked to calculate a probability pay close attention to the wording. When you see, "find the probability of 'A' happening **OR** 'B' happening" find the probability of 'A' happening then find the probability of 'B' happening then add those two probabilities together to give your final answer. When you see questions, "find the probability of 'A' **AND** 'B' happening" Calculate the two probabilities then add them together.
- **Draw A Tree Diagram**. Remember we multiple probabilities along branches and add probabilities of different branches together.
  - Bellow is a tree diagram for a situation in which we have a bag with two blue balls and five red balls and are drawing balls from the bag without replacement:

FIRST BALL PICKED	SECOND BALL PICKED	OUTCOMES	PROBABILITIES
2/7	1/6	(B, B)	$2/7 \times 1/6 = 1/21$
	5/6	(B, G)	$2/7 \times 5/6 = 5/21$
2/7	2/6	(G, B)	$5/7 \times 2/6 = 5/21$
	4/6	(G, G)	$5/7 \times 4/6 = 10/21$

- **Key Tree Diagram features:**
  - Each "Selection" or "event" is represented but a layer on the tree.
  - Remember to change the probabilities for the next "event" if there is **no replacement**
  - If items are being replaced (e.g if the first ball selected had been put back in the bag) then the probabilities for the second selection would have remained the same as they were in the first selection.
  - To find the probability of some combination, multiple along the appropriate branch.
  - If you are asked to find the probability of some combination **OR** some other combination, you will need to add branches. E.g Probability of a green ball then a blue ball **OR** a blue ball then a green ball is P(G,B) + P(B + G) = 5/21 + 5/21 = 10/21

OVERALL

- Your success in this paper will largely depend on how much you stress the details; clear working, correct terminology, and accurate graphs are really key areas to stay on top of.
- Remember in statistics we are trying to answer questions about real-world events, your job is to answer the question but also to give context as to how well you can answer the question, and how it might be possible to improve your certainty.
- We've covered some core strategies and things to remember, but we haven't covered everything.
- As we said at the start of this video, we really recommend going through the last 3-4 years of exam papers, and also using the StudyTime Walkthrough Guide and Checklist to really check and consolidate your knowledge and feel 100% prepared!