Lesson Plan – 10 Times Table

Introduction

The 10 times table is taught by Dylan the Dragon. Dylan is a colourful Dragon who has special abilities that help him with mathematics. Dylan helps explain to the students in his own unique way that “the best way to solve ten times is to change the place value of the number by placing a zero on the end. A ones number becomes a ten’s number and a ten’s number becomes a hundred’s number”. The concept of place value is important to learn with 10 times as preparation for learning decimals. If you place a zero on the end of a decimal you will end up with the same number you started with, whereas when multiplying a decimal by 10 you should have changed the place value by moving the decimal point to the left. It is important when teaching 10 times that the terminology used is “placing a zero on the end to change the place value”. Your student/s will thank you when they come to learn decimals.

The 10 times table needs to be well understood by the students in order to progress through the Times Tables as they are used to work out the 11 times and 12 times tables with the skill of Number Sense. In the “Learn” scene, Dylan starts teaching the 10 times table by skip counting in 10’s. This is an important concept as the students can connect this to their learning in the 2 and 5 times tables. Once the students understand this concept, Dylan goes on to explain the pattern where the answer is the number being multiplied by 10 with a zero placed on the end. Dylan then explores the concept of place value with the student. Finally, he goes on to explain how 10 times can help with the other times tables. If you see the number 10 in any other times tables then the easiest way to solve will be to swap the numbers around to make it a 10 times problem (commutative property).

Learning Outcomes

- Each student understands that the 10 times tables can be worked out by skip counting in 10’s and is competent in doing so.
- Each student understands the 10 times pattern. The answer is the number being multiplied by 10 with a zero placed on the end.
- Each student understands the concept of place value. That multiplying by 10 makes a one’s number a ten’s number and a ten’s number a hundred’s number.

- Each student understands that if you swap the 10 around in the multiplication you get the same product, or answer (commutative property). They understand that if you see a 10 in any problem, that solving it as 10 times is an easy way to solve it.
- Each student continues to develop their mindset through the feedback provided for correct and incorrect answers.

Resources Required

- The App on a device with 3GB of available memory to download all of the videos
- Overhead projector or TV Monitor connected to the device (if teaching in a Group)
- Paper and pens/pencils for students
- Coloured pencils or crayons

Scenes

- This activity involves watching the "Learn" scene, followed by the "Tips" scene and then successfully answering all twelve 10 Times Table questions. After login, select the "Learn the Times Tables" button followed by the "Start" button or "10 Times" tile on the Home Screen. Before commencing the lesson make sure that you have completed this step as the it will start the process of downloading the 10 times videos which will take a few minutes.

Lesson

Time	Task
210 mins	**<u>Key Concepts for 10 Times</u>** Select the "10 Times" tile on the home screen. Select the "Learn" button and watch the video (4 minutes). At the conclusion of the video, ask the student/s: **"What were Dylan the Dragon's key messages within the Learn video?"** Responses should include but not be limited to: - Multiplying by 10 is the same as skip counting in 10's. - There is a pattern in the 10 times table. The answer is the number being multiplied by 10 with a zero placed on the end.

	- When you multiply by 10 you are changing the place value. You make a one's number a ten's number and a ten's number a hundred's number. - If you swap 10 around in the equation you will get the same product or answer (commutative property) - It is best to solve any times tables problem which has 10 as one of the factors as a 10 times problem as you can simply change the place value of the other factor for the answer.
20 mins	**<u>Tips to help with 10 Times</u>** Select the "Tips" Button and watch the "Tips" video on the Practice screen (1.5 minutes). You can expand the video to full screen by pushing the expand button on the top right-hand corner of where the video is playing. It will automatically drop back to the practice screen at the end. At the conclusion of the video the first question will play. Wait for it to finish and ask the student/s: **"What were Dylan the Dragon's key messages within the "Tips" video?"** Responses should include but not be limited to: - Practice will grow more connections in your brain - If you see a ten in the question then just take the other number and change the place value, by placing a zero on the end, for the answer. - If you understand the concept of changing the place value, you will be able to work out the answer to ten times in your head. - The ten times table is "easy peasy", so start placing your zero's on the end.
60 mins	**<u>Solving the 10 Times Tables</u>** The objective is to work through the 12 ten times questions until all 12 stickers are obtained for the correct answers. You also want to enter some mistakes, firstly so the students can all learn from the mistakes and, secondly so you can listen to

	Dylan and his "Growth Mindset" advice when you do make a mistake. This activity can be done as individuals, in groups of up to 4 students or as a class. "For each real-life example, you will need to look at the question and firstly work out the times tables problem that you need to solve and write this in the working out space. The numbers are in bold to make it easier. Remember the way to write it is the number of groups multiplied by the objects. I then need you to solve that problem. We will then type it in and check if it is the correct answer." Help the students with the first question which will be x times 10. Show the working in the working out space by writing the equation and then highlighting there is x groups each with 10 objects resulting in the equation x times 10. Then ask, - "If there are x times 10 objects (or 10 groups), then let's change the place value by placing a zero on the end to get the answer. - Type the answer and select the "Check" button - Watch the correct answer video from Dylan - Select the "I've Got This" button to receive your sticker - Select the "Next" button and the next question will automatically appear on the practice screen - Ask each student or groups to solve this one by changing the place value. Give them a few minutes to report back. - Ask first if there are any ways you could make a mistake with this question as learning from mistakes is when our brain grows the most. If there is, then show how you could make the mistake, type in the wrong answer and watch the video response from Dylan. There are some excellent mindset sayings and examples in each of the incorrect answer videos that are well worth sharing with the students.

	- Select the "Watch Again" button and watch the video to show the coaching available if the student answers incorrectly. - Ask for someone to come up and show the correct workings to solve the problem. Explore the concept of x groups of 10 object, with them - Ask them to type in the correct answer and select "Check" - Select the "I've Got This" button to receive your sticker - Select the "Next" button to move onto the next question - Repeat the above sequence until all 12 questions are answered correctly - Select the "Flashing Dylan sticker" in the middle of the sticker wheel - The Congratulations video will play, and the Dylan Sticker will pop into place on the Home Screen as recognition that you have learnt and understand the 10 Times table. Dylan also uses the opportunity to introduce the concept of dividing by 10 by doing the opposite of placing a zero. He removes a zero from the end of 120 to get the answer of 12. It is well worth spending some time to explore division by 10 with students at this point. Give your student/class some applause or other form of recognition. Wrap this activity up by asking the student/group: - "Do you now feel like can solve 10 times table questions by changing the place value of the number being multiplied by 10?" If they feel like they need more practice, then click on the 10 times tile again which will take you to the Progress Screen where you can select the "Reset" button. It will ask if you want

	to reset. Select "Yes" and then select the "Next" button to start the first question again. Once the student/class are comfortable that they understand and can solve the 10 times table, then announce "you are now ready to move onto the 5 Times Table".
30 mins	**<u>Creative Activity – Draw your own Dragon</u>** This activity is done as individuals. "Dylan is a pretty cool dragon. Dragons are mythical creatures that appear in folklore. They star in many books, cartoons, TV shows and movies. Unlike dinosaurs, no-one has ever proven the existence of dragons. This creates a unique opportunity for us as budding artists. If no-one has ever seen a dragon, then we can be creative when we draw our own dragon." Now, we've been asked by the App Designer to help them design a dragon for their next math App. "Your task is to name and draw your own colourful dragon, and to also include something to learnt about 10 times." You have 25 minutes to draw at which point we will all introduce our dragons and one of the things we learned about 10 times to the rest of the class. Once complete ask the students to introduce their dragon and the concept they learnt in 10 times. Ask the class to applaud at the end of each introduction.
	<u>Follow-Up Activity – 10 Times Worksheet</u> The App is designed with the real-life questions as a means of formative assessment to give an indication how each student is learning the material throughout the course. Once the students have demonstrated an understanding of the 10 times tables, there is a worksheet available with 12 different real-life questions to either continue practicing or to use as a means of summative assessment. The worksheets include a space for the students to work out the answers. All worksheets are available for download from the following link: https://educationthroughanimation.com/pages/worksheets