

## Welcome

Firstly, congratulations on doing your part to improve the education levels of students throughout the world. This “Times Tables made Easy” App was created to demonstrate that everyone has a “maths brain” if they are taught the concepts visually so they truly understand and follow this up with practice. The App is designed to teach the 0 to 12 times tables within a few weeks. The App will also provide the basis for formative assessment of progress throughout. It is self-paced and self-assessed to take the stress out of learning the times tables.

The App provides a unique learning experience with each student learning number sense whilst they learn the Times Tables. The language used throughout the App is designed to assist in developing a growth mindset in each student. It differs from other Apps in that most of the learning content is within animated scenes in the App. The role of the teacher or parent is to facilitate and add to this learning with the help of lesson plans. The goal is to coach the students until they have a full understanding of all the tables and can use multiple ways to solve them.

## Pre-requisites

The App can be used by an individual student on tablet, phone or Chromebook PC and can also be projected on a screen or TV monitor in the classroom. There is over 3 hours of animated content and as such the device will need 3GB of free memory to download all the video content. Multiple students can learn on the one device with the App downloaded using their own unique log-in. The only pre-requisite learning is that the student/s can count to 144 and do simple addition like 25 plus 14.

## App Design

Each Times Table is taught by one of 13 animated characters who will keep the students engaged in the learning. They also provide coaching and recognition when the student answers each question correctly or incorrectly and will congratulate the student when they complete each table. As the students’ progress, they are rewarded with stickers until they

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reach the goal of correctly answering all 156 real-life times tables questions.

After the students meet each of the characters, there are a number of introductory scenes where some of the key concepts throughout the App are taught. These concepts include:

- **Number Families** – and how to use these to make solving times tables problems easier. The students are taught that order of the numbers does not change the answer (commutative property) i.e  $4 \times 2$  is the same answer as  $2 \times 4$ . They also learn that division is the opposite of multiplication to build this connection for when the students move onto learning division.
- **Number Sense** – Number sense is the ability to make a harder maths problem an easier one by using numbers flexibly. It's knowing that 12 times is just 10 times plus 2 times. Number sense is a skill that differentiates students who demonstrate a high level of competence in maths from those that don't. Learning number sense will not only improve the student's competence in maths, it also reduces the amount of repetitive or rote learning to learn each Times Tables. Once the 1, 2, 5 and 10 Tables are learned, number sense is then used to teach the harder times tables as a combination of the easy tables. It takes the stress out of learning the Times Tables.
- **Growth Mindset** – Although not labelled as such, the students are taught the importance of understanding and practice in achieving their learning goals. They are introduced to the idea that connections grow in their brain as they learn new skills and abilities, provided they stick with it.

The sequence of learning each of the times tables commences with a "Learn" video, where the key concepts and strategies on how to solve each times table are visually explained using animation followed by the symbolic representation. This is followed by a "Tips" video which is played on the practice screen. The intent of the "Tips" video is to help students with some tactics for each of the Times Tables. Tactics might include using number sense to swap the numbers around for some of the problems to solve using the easier times tables. This is followed by "Practice" where real-life problems are given to each of the students to solve. There is one

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for each question, from 1x to 12x for each table. They appear in a random order each time. After each question presents, the student can work out the solution in the touch sensitive workspace on the right of the screen. They then type in their answer and select the “Check” button. If the student gets the correct answer they will be recognized with a short video and should then self-assess by selecting the “I’ve Got This” button where they will receive a sticker. They then select the “Next” button to move onto the next question and repeat.

If the student gets the incorrect answer they will be coached with a short video and given the option to either select the “Watch Again” button or the “Try Again” button. The “Watch Again” button opens a scene with the character coaching them through the key concepts again for this particular times table. They then select “Try Again”, work out an alternative solution and enter it.

Growth Mindset language and examples are used in all the feedback videos for correct and incorrect answers throughout.

The above process is repeated until all 156 questions are correctly answered and then an overall congratulations scene plays, followed by the credits video for those who contributed the App.

## Lesson Plans

Lesson plans are provided for each introductory scene as well as for learning each times table at the following link:

<https://educationthroughanimation.com/pages/lesson-plans>

They provide a structured methodology for achieving the learning outcomes. Each lesson plan also contains a creative activity that relates to the creation of the scenes within the App. Examples include creating artwork, voice acting, singing and writing.

At ETA, we are constantly wanting to improve the content we provide. If you have ideas on how to improve the content in each lesson plan, then please email these to [admin@educationthroughanimation.com](mailto:admin@educationthroughanimation.com)

## Worksheets

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, there is a worksheet available with 12 different questions for each Times Table 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>

## Practice, Practice, Practice

On completion of the activities within the App the student will be competent and confident in solving all of the times tables. They should also have the desire to continue practicing so stronger connections can form in their brains. The next step is to build fluency and automaticity for each table. This is achieved through ongoing practice of different types and styles of times tables questions. The more practice the more fluent they will become until they get to a point where the answers just pop out of their brains automatically. The real benefit of the App is that the students spend less time memorising math facts which then frees up more time to practice, building confidence and fluency before they move on to learn division.

## Feedback

Any feedback on successes or opportunities to improve the App and supporting material are most welcome. Please email us directly at [admin@educationthroughanimation.com](mailto:admin@educationthroughanimation.com).