# Merge Cube Magic

## Band level: Years 5 to 6 (Beginner level activities)

## Description: Students will explore the concept of Augmented Reality through the use of Merge Cubes. This lesson is an introduction to Merge Explorer app to experience how interactive digital elements overlay into real world environments.

## Resources:

- iPad, (no internet required)
- Merge cubes
- Mega Merge Cube (optional)
- MERGE Explorer app
- Printable template
- Card and paper
- Topic Question cards

## Prior Student Learning: None required

## What is Augmented Reality? Augmented reality is using technology to superimpose information such as sounds, images and text onto real world objects that we see. It works by adding the digital content onto a live camera feed, making that digital content look as if it is part of the physical world. This could be anything from making your face look like a dinosaur to overlaying digital directions onto the physical streets around you.

## What is a Merge Cube? The Merge Cube is a spongy, dense black foam cube with silver markings on all six sides in patterns similar to QR codes. The patterns provide an Augmented Reality trigger that launches when any of the Merge apps are pointed at the cube. It provides a powerful interactive experience in a real world environment where an object (the cube) is enhanced by a 3D digital-generated image that comes to life by using the camera on a digital device.

## What is the Merge Explorer App? With the MERGE Explorer app students will learn about topics such as earth science, life cycles, the solar system, anatomy, properties of matter, weather and climate, ecosystems and more. The app provides students with an interactive experience in which digital images, sounds and text can be seen on the Merge Cube. Students can investigate a volcano, examine inside the human body, and hold the earth in the palm of their hands. They can even dissect a frog (humanely)!

**Digital Technologies Summary:** In Year 5 and 6, students develop an understanding of the role individual components of digital systems play in the processing and representation of data. Students will have had opportunities to create a range of digital solutions. When creating solutions, students define problems clearly by identifying appropriate data and requirements. When designing, they consider how users will interact with the solutions, and check and validate their designs to increase the likelihood of creating working solutions.

## Curriculum Links:

| **Band/Year Level** | **Digital Technologies Achievement Standard**<br>By the end of Year 6, students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. |
|---|---|
| Year 5 to Year 6 | |
| | **Content Descriptions:**<br><br>**Digital Technologies: Knowledge and Understanding**<br>Examine the main components of common digital systems and how they may connect together to form networks to transmit data (ACTDIK014)<br><br>**Digital Technologies: Process and Production skills**<br>Define problems in terms of data and functional requirements drawing on previously solved problems (ACTDIP017) |
| Level 4 | **General Capabilities**<br><br>ICT Capabilities<br>● Locate, generate and access data and information<br>● Select and use hardware and software<br>● Understand ICT systems<br><br>Critical and creative thinking<br>● Locate, generate and access data and information<br>● Imagine possibilities and connect ideas |

## Whole class activity: Explore Phase

The teacher introduces the students to the concept of Augmented Reality though the **Merge Explorer** app.

Use the net supplied at www.mergecube.com/paper and create a large cube on A3 paper or card. Students move around the large cube with an iPad using the **Merge Explorer** app to discover the different AR options. Open **Merge Explorer** and begin with Learn How to Use Merge Explorer topic card. When the app is aimed at the Merge Cube the students will have a powerful Augmented Reality experience. This is the Explore phase so let the students explore the app to find out what it can do. Tap inside the topic Card to scroll down and outside the topic card to exit the activity.

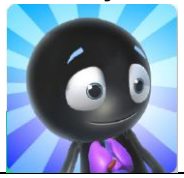
See this video on steps to make the mega cube.
https://www.youtube.com/watch?v=qvo0ENl4CCA

The free components of MERGE Explorer enables students to investigate:

- anatomy of the human body
- the solar system
- anatomy of the earth
- matter and chemical reactions
- rock history of earth
- ecosystems and the food web
- water, weather and the atmosphere
- life cycles and traits of plants

## Group work activity: Play Phase

1. Divide the students into groups and provide an iPad and Merge Cube to each.
2. Open the **Merge Explorer** app and click Skip at the bottom of the screen. There is no need to sign up or start a free trial. Choose one of the free sections and read through the topic card information.
3. Interact with each AR activity to explore, discover and learn. By clicking play this opens the camera on a device. When a student scans the Merge Cube the magic happens and students can hold an object in their hands. Students are to complete the topic card activities.
4. Students can click on the speaker icon to hear the information being read aloud.
5. Explore the stamp tool to freeze the cube's position in virtual space. Create multiple stamped copies to view through your device

| Mr Body | Galactic Explorer | Terraforming Earth | Types of Reactions |
|---|---|---|---|
|  |  |  |  |

| Rock History of Earth | The Food Web | Weather and Climate | About Plants |
|---|---|---|---|
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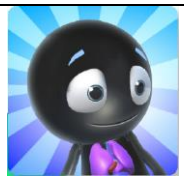
## Individual/Group work activity: Learn Phase with Topic Cards

By the end of the activity, students should be able to list some facts they discovered:

| | |
|---|---|
|  My Body |  Galactic Explorer |

## Terraforming Earth

## Types of Reactions

## Rock History of Earth


## The Food Web

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|  Weather & Climate |  About Plants |