


AR, VR and MR = XR

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A large, stylized blue outline of a pair of glasses is centered on the left side of the slide. The background is white with various colorful geometric shapes: a green rectangle, a blue square, a purple triangle, a yellow triangle, and several small white diamonds. A diagonal grey and black bar runs from the top right towards the bottom left, partially overlapping the glasses icon.

What apps should I download?

For our hands-on activity, please
download MERGE's *Object Viewer*

Virtual
memory
palaces:
immersion
aids recall.

"People remember information better if it is presented to them in a virtual environment."

"Head-mounted-display [...] provide a superior memory recall ability compared to the desktop condition."

The Impact of VR on Academic Performance.

"VR-based education allowed students to achieve higher learning retention."

Mixed Reality in Science Education as a Learning Support

"Students who learned with MR as a learning aid revealed significantly better results in terms of their science learning outcomes."

Weng, C., Rathinasabapathi, A., Weng, A., & Zagita, C. (2019). Mixed Reality in Science Education as a Learning Support: A Revitalized Science Book. In *Journal of Educational Computing Research* (Vol. 57, Issue 3).

Mixed Reality in Science Education as a Learning Support

"AR did capture the attention
of the students to a greater
degree than the website only
group."

It is a crossover of Augmented and Virtual Reality. It's a more realistic experience where the Augmented becomes interactive.

What is Mixed Reality?



It's a virtual overlay on the real world.
Takes time to set up
Needs apps to run
Students can learn to use quickly
Provides exciting learning opportunities

How is Augmented Reality different?



We know the basic potential so why not invest and support the future...

Is Virtual Reality worth investing in?



Choose Your Reality: QR, AR, VR

What is this alphabet soup?

- QR Code = Quick Response Code, a type of barcode which can link to text data, URL, etc.
- AR = Augmented Reality, an overlay of digital content over a real-world environment
- VR = Virtual Reality, an illusion of reality created by a computer
- MR = Mixed Reality, a blend of AR and VR



AR

- Instructional demonstration
- Center instructions (scan center sign to view video of instructions)
- Books with multiple layers of information ("Transmedia Books")
- Answer keys to independent work
- Student projects

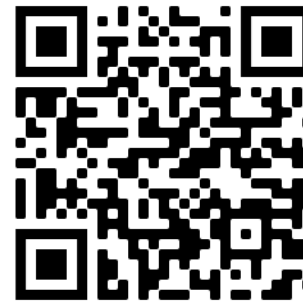
- Instructional demonstration
- Virtual field trips
- Visualize mathematical concepts
- Lab simulations



VR

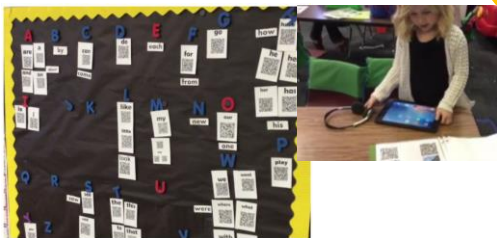
- Answer keys to independent work
- Center instructions
- Links to audio / video (such as word walls, read-aloud books, FlipGrid videos, etc.)
- Grab-bag for rewards (scan "mystery" QR code to reveal text describing prize)
- Share QR code with parents to link to class website, newsletter, etc.
- Link to extension activities

QR



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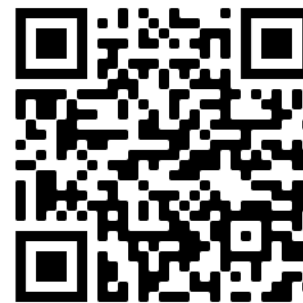
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VR

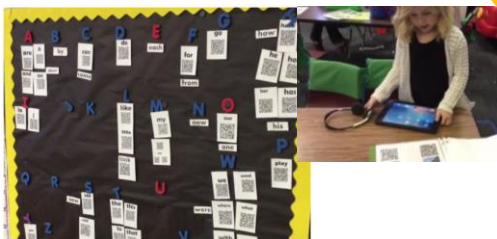
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But how do we take kids
from using premade tools...



to designing activities of their own to
make an impact in their community?

Let's Begin with
the Most Basic Experience

QR, AR, VR, Oh My!

Let's Break Out!

So, how did we accomplish all those radical tricks?

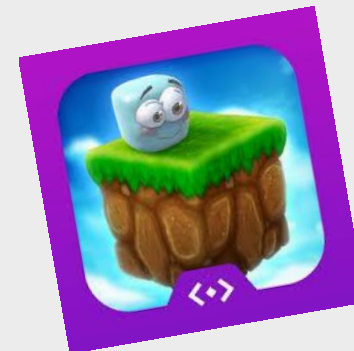
Let's learn...

MERGE VR

Apps for Learning

- **Object Viewer**

- Merge Things
- Explorer
- Dig
- Party Games
- Museum View
- Mr. Body
- Galactic Explorer



Blend Creation & VR

This Minecraft style game allows kids to build a virtual world and share their design with a screen recording option. Having them explain their project allows them to share their successes and challenges within the design process.





MERGE VR

Playing with Merge VR as a learning tool means going beyond the basic "sit & get" learning model and encouraging the students to create and design in order to teach others.

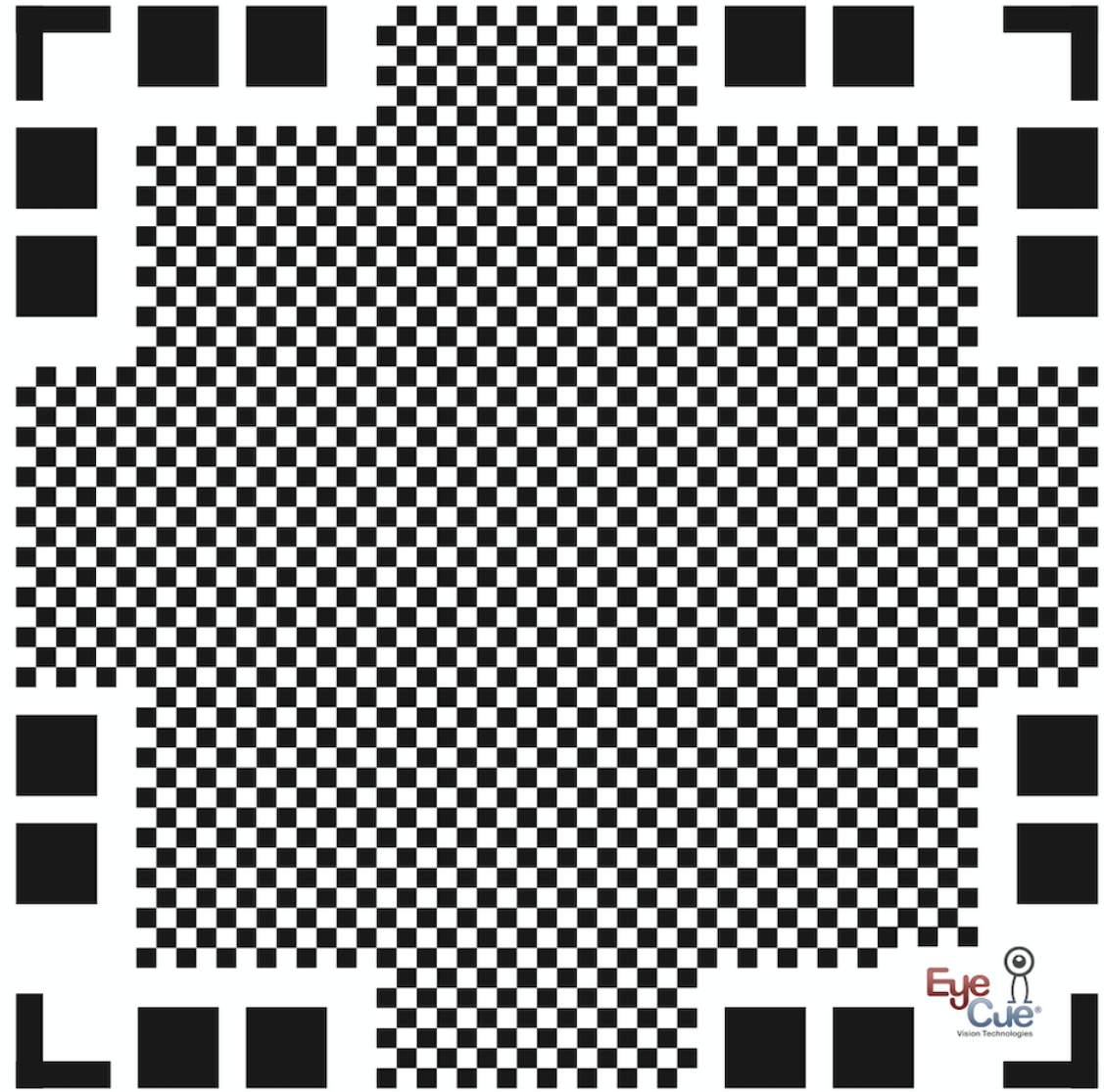
Blend Creation & AR

Have students create a 3D prototype in Tinkercad. They can take a picture of it for the wall during parent's night at school. They can save the prototype as an .obj file and upload it to Merge Cube. Merge Cube will spit out a code that they can add to their picture. Parents can use the Merge Cube to see the 3D prototype in AR and hold it in their hand. No money is spent on filament and everyone still gets to hold and view the 3D prototype.



Creating your own 3D Images

Using the Qlone App:
Have your students
create an I spy game
by capturing and
uploading their own
3D item.



Let's take a live
look at some
tools for all ages:

