Impossible Objects
How to make them possible?

What can be an impossible object in the math -world?

Maybe a triangle whose each interior angle is 90^{o} ?
Let's start searching a triangle like that. Add the name "Penrose" to your search. What are your findings?
Try drawing a Penrose Triangle.

Did you see such drawings or objects around you?

In this picture "Waterfall", two Penrose triangles have been combined into one impossible figure.
The waterfall is a closed system, yet it turns the mill wheel continuously, like a perpetual motion machine, violating the law of conservation of energy.
(Notice the intersecting cubes and octahedrons on the towers.)

Ascending and Descending, 1960, by MC Escher

Then, search about the recycling logo. Who has designed it and when? Find out the origins of this logo.

Do you see any impossible objects around you?

- bottles with no insides (or outsides), one-edged loops, solid ball with no fixed size.

Can you make any impossible objects by using only a piece of paper and glue?

Have you ever heard about Mobius Strip?
Who discovered it?
Watch the video here and learn about the original name of the shape?
Why this shape is so special?

Repeat the same magical moves to create a four-twisted loop, a square and the hearts as you have seen in the video.
Start your loop with a single twist.

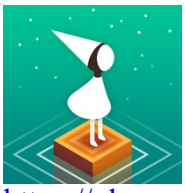
Make your prediction before unravelling the pieces–how many pieces will there be after halving horizontally?

Will they be all the same size?
How many twists will they have?
Then cut it again. Answer the same questions.

What happens if you start with a double twist?

Two Game Apps to play to Learn & Experience
Impossible Shapes More:

Monument Valley



Apple App Store:
https://apps.apple.com/us/app/monument-valley/id728293409

Google App Store:
https://play.google.com/store/apps/details?id=com.ustwo.monumentvalley&hl=en

Hocus.

Apple App Store :
https://apps.apple.com/us/app/hocus/id1030548464

Useful resources:

- Story of the recycle logo and math
http://mathtourist.blogspot.com/2010/08/recycling-arrows.html

- Escher's math World and Vocabulary;
https://moa.byu.edu/wp-content/uploads/unveiling-eschers-illusions-2_2.pdf

- Penrose Triangle from Wolfram;
https://mathworld.wolfram.com/PenroseTriangle.html

- Escher & Penrose;
https://im-possible.info/english/articles/escher_math/escher_math.html