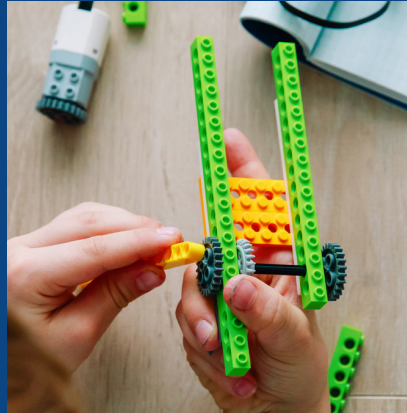


# MIC STEM Challenges

for Limerick Lifelong Learning Festival



Take a picture of your designs & tag us in your posts!

🐦 @MICLimerick, @LimkLearnFest, @ListonMaeve

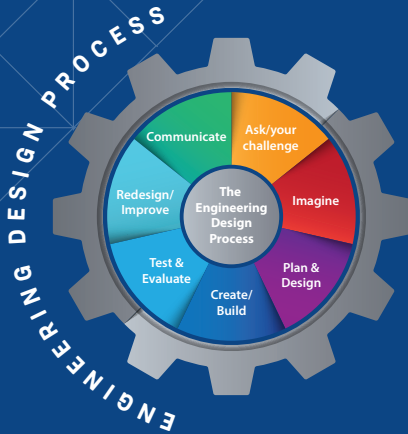
📘 @maryimmaculatecollegeireland, @limericklifelonglearningfestival

📷 @miclimerick, @limericklifefestival



# MIC STEM Challenges

## for Limerick Lifelong Learning Festival



Mary Immaculate College (MIC) has designed a series of fun engineering and construction activities for you to do at home to celebrate Limerick LifeLong Learning Festival 2020, which takes place online from Monday 28 September to Sunday 4 October 2020.

These activities can be done on your own or as part of a team with your family at home. You'll be able to source all of the materials needed for each challenge from what you have in your kitchen or around your home.

You will think and act like an Engineer and follow the Engineering Design Process throughout these challenges. The Engineering Design Process is a series of steps that guides engineering teams as they solve problems.

We would love to see some of your designs so be sure to get your parents to take a picture of your design and tag us in their social media posts using #STEMChallengesMIC.

 @MICLimerick, @LimkLearnFest, @ListonMaeve

 @maryimmaculatecollegeireland, @limericklifelonglearningfestival

 @miclimerick, @limericklifefestival

# MIC STEM Challenge

# 1.



## Challenge 1:

- You and your team have been selected to make the tallest tower possible from 90cm of tin foil and NOTHING else

What you need to do to complete the challenge:

1. You will design a tower.
2. You will act like an Engineer and follow the Engineering Design Process.
3. Your device can be any dimensions, but it has to be as tall as possible.
4. You can only use 90 cm of tin foil and nothing else. That is no glue, tape, paper clips etc.
5. The tower must be free standing and cannot be supported or propped up against anything.

# MIC STEM Challenge

## 2.



### Challenge 2:

- You and your team have been selected to make the strongest device out of straws to hold up as much weight as possible

What you need to do to complete the challenge:

1. You will design a device that can hold a small container on top of it (paper/plastic cup). The container will then be filled gradually with weights (add coins/marbles/paper clips (whatever you have at home) one by one into the container).
2. You will act like an Engineer and follow the Engineering Design Process.
3. You can only use a maximum of ten straws.
4. You can only use use straws, paper clips and elastic bands but nothing else. That is no glue or tape.
5. The device must be free standing and moveable (it cannot be attached to any surface).

# MIC STEM Challenge

## 3.



### Challenge 3:

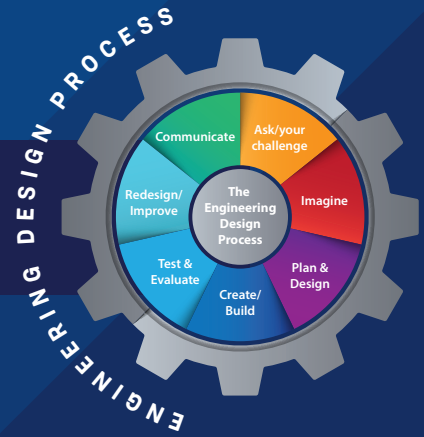
- Make the tallest tower possible from 6 index cards and NOTHING else

What you need to do to complete the challenge:

1. Design a tower.
2. Act like an Engineer and follow the Engineering Design Process.
3. Your device can be any dimensions, but it has to be as tall as possible.
4. You can only use 6 note cards and nothing else, so that means no glue, tape, paper clips etc.
5. The tower must be free standing and cannot be supported or propped up against anything.

# MIC STEM Challenge

## 4.



### Challenge 4:

- You and your team have been selected to make the longest, trickiest marble run using cardboard and toilet / kitchen roll inserts

What you need to do to complete the challenge:

- You will design the longest, trickiest course in which to deliver a marble to its final destination. The longer and trickier the better.
- The marble must do the following at least once as it is moving through its track:
  - Go up
  - Come down
  - Fly up in the air
  - Change direction/turn
- You will act like an Engineer and follow the Engineering Design Process.
- You can only use cardboard and toilet/kitchen roll inserts, tape and a scissors.
- There is no limit to the amount of paper you can use.
- The track can be at least 5 metres long.
- The device must be free standing and cannot be supported or propped up against anything.

# MIC STEM Challenge

# 5.



## Challenge 5:

- You and your team have been selected to make the tallest tower possible from 2 sheets of newspaper and 30cm of tape

What you need to do to complete the challenge:

1. You will design a tower.
2. You will act like an Engineer and follow the Engineering Design Process.
3. Your device can be any dimensions, but the tower must be as tall as possible.
4. You can only use 2 sheets of newspaper, 30 cm of tape and nothing else.
5. The tower must be free standing and cannot be supported or propped up against anything.

# MIC STEM Challenge

# 6.



## Challenge 6:

- You and your team have been selected to make the strongest device to hold a heavy book using 10 sheets of newspaper

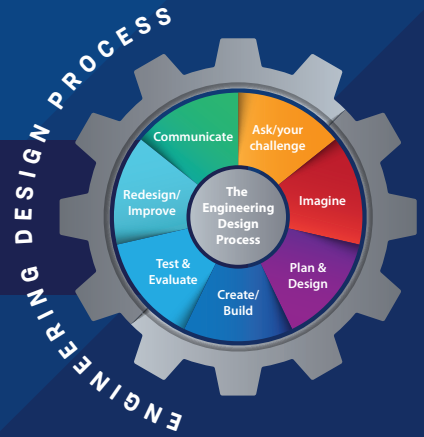
What you need to do to complete the challenge:

- You will design a device that can hold a heavy book, 15cm above the surface of a table for at least 10 seconds.
- You will act like an Engineer and follow the Engineering Design Process.
- You can only use 10 sheets of newspaper and nothing else. That is no glue or tape.
- The device must be free standing and cannot be supported or propped up against anything.



# MIC STEM Challenge

## 7.



### Challenge 7:

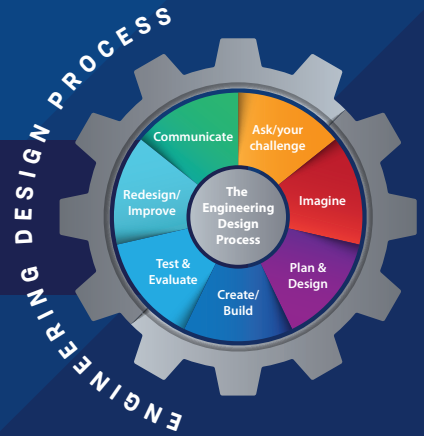
- Design 10 different uses for a paper clip

What you need to do to complete the challenge:

1. You will design 10 different and completely new uses for a paper clip.
2. You will act like an Engineer and follow the Engineering Design Process.
3. You can only use 1 paper clip per new design
4. You cannot use anything else besides the paper clip. That is no glue, tape, paper clips etc.

# MIC STEM Challenge

# 8.



## Challenge 8:

- You and your team have been selected to make a chair to hold a person above the ground for 5 seconds using newspaper and or magazines

What you need to do to complete the challenge:

1. You will design a chair that can hold a person above the ground for 5 seconds using newspaper and or magazines.
2. No body part of the person can be touching the ground when he/she is sitting on the chair.
3. You will act like an Engineer and follow the Engineering Design Process.
4. You can only use newspaper and or magazines, tape and a scissors.
5. There is no limit to the amount of paper you can use.
6. The device must be free standing and cannot be supported or propped up against anything.

# MIC STEM Challenge

# 9.



## Challenge 9:

- You and your team have been selected to make an architectural piece of design using 20 plastic/paper cups

What you need to do to complete the challenge:

1. You will design an elaborate structure using 20 plastic cups.
2. Only one cup can act as the base for the rest of the cups to balance on.
3. You will act like an Engineer and follow the Engineering Design Process.
4. You can only use 20 plastic/paper cups only. No tape or glue can be used.
5. The structure must be free standing and cannot be supported or propped up against anything.