

(Gr. 9&10) Week 4: Innovation & Creativity

Continue your journey of learning over the summer.
You can choose to explore as many activities as you wish each week.
Challenge yourself to at least 3 in a row- just like playing Tic Tac Toe!

Creating a Harmonograph

A harmonograph is a mechanical device that uses swinging pendulums to draw pictures, invented in 1844 by Scottish mathematician Hugh Blackburn.



Check out how to make one here:
<http://www.karlsims.com/harmonograph/>

Playful Wonderland of Invention

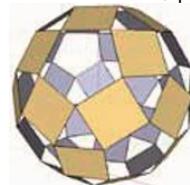
Click [HERE](#) to view the video.

After viewing:

- Find someone to play a game with you - indoors or outdoors.
- Create your own version of that game.
- Think of what the future will look like based on some of your favourite games.

Create a Windball

Build a giant windball to kick around at the park, or create a smaller version to decorate your home. All you need are some cardboard sheets, pins and clips.



[Instructions to Build a Giant Windball](#)

Creating at the Library

Toronto Public Library sites across the city host events for Teens where you can innovate and create. From DIY colour-changing tumblers, to coding, to jewelry making, or even building a desktop computer!

[Click here to see the offerings for Teens this summer.](#)

Be sure to ask an adult about signing up, and check the location nearest you!

Get Active!

Click on the link to try the following activity:

[SOCK BALL BOCCE](#)



Innovating Solutions

Identify something in your home or school that needs some innovating or upgrading.

Use this [Innovation Plan Template](#) to help you work through the stages of thought and planning required to be able to innovate solutions.

Light and Sound Inventions

Imagine that you were around when these major innovations were created.

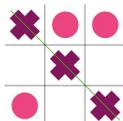
Use this [slide deck](#) from Let's Talk Science to answer questions about the impact these inventions had and why.



Tic Tac Toe of Mental Health

[TIC-TAC-TOE: MENTAL HEALTH CHOICE BOARD](#)

Staying healthy is more than just your eating and staying active. It is also about recognizing our emotions, relaxing and exercising our minds.



Fractals

Fractals are complex repeating patterns, made up of smaller versions of themselves. One of the simplest fractal forms is the Sierpinski triangle. The [Sierpinski triangle](#) is a fractal with an overall shape of an equilateral triangle, subdivided recursively into smaller equilateral triangles.

Legos are perfect to make fractals. You will need a lot of Legos to make a Sierpinski triangle. For instance, you need $3^5=243$, 2x2 Legos to make the Level 3 Sierpinski triangle below.

