



## #2 Invention and Inventors HTWW (23-24)

**Duration:** 6 Weeks, 3 hours

**Unit dates:** 23rd Aug 2023 - 4th Oct 2023

**Subjects:** Language, Social Studies, Science, English, Physical Education, Music

**Grades:** 3

### Planning



#### Transdisciplinary theme

How the world works

Transdisciplinary theme focus

- the impact of scientific and technological advances on society and on the environment



#### Central idea

Innovation can lead to technological advancement and have an impact on society.



#### Learner profile attributes

Inquirers, Risk-takers



#### Key concepts

Causation, Function, Change



#### Related concepts

Concepts

- **Causation:** forces and motion
- **Function:** scientific principles
- **Change:** innovation



## Lines of inquiry

- Understanding how forces and motion interact (forces and motion, causation)
  - How individuals utilize scientific principles to innovate (scientific principles, function)
  - How innovation can result in technological advancement and change how things are done (innovation, change)
- 



## Approaches to learning

### Communication Skills

#### Communication Skills

#### Communication Skills (General)

#### Teaching the ATL skills

#### SEL Journeys - Relationship Skills

---



## Subject standards

### Physical Education

#### Manipulative

##### Overhand throw

- Throws overhand, demonstrating 3 of the 5 critical elements of a mature patterns, in non-dynamic environments (closed skills), for distance and/or force.

##### catching

- Catches a gently tossed hand-size ball from a partner demonstrating 4 of the 5 critical elements of a mature pattern.

##### Passing and receiving with feet

- Passes and receives a ball with the insides of the feet to a stationary partner "giving" on reception before returning the pass.

#### Working with others

##### Interactions

- Works cooperatively with others.

#### Accepting Feedback

##### Interactions

- Accepts and implements specific corrective feedback from the teacher.

#### Personal Responsibility

##### Interactions

- Exhibits personal responsibility in teacher-directed activities.

#### Engages in Physical Activity

##### Interactions

---

- Engages actively in the activities of physical education class without teacher prompting.

## **Movement concepts**

### Speed, direction, force

- Combines movement concepts (direction, levels, force, time) with skills as directed by the teacher.

### Space

- Recognizes the concept of open spaces in a movement context.

## **Rules and Etiquette**

### Interactions

- Recognizes the role of rules and etiquette in physical activity with peers.

## **Social Studies**

### History

#### Change, Continuity and Context

- HIST 3.1 - Create and use a chronological sequence of related events to compare developments that happened at the same time. *(HIST 3.1)*
- HIST 3.2 - Compare life in specific historical time periods to life today. *(HIST 3.2)*
- HIST 3.3 - Generate questions about individuals who have shaped significant historical changes and continuities. *(HIST 3.3)*

## **Music**

### Connecting

#### Connect

- MU:Cn11.0.3a - Demonstrate understanding of relationships between music and the other arts, other disciplines, varied contexts, and daily life. *(MU:Cn11.0.3a)*

## **Science**

### Engineering Design

#### Asking Questions and Defining Problems

- 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

#### Constructing Explanations and Designing Solutions

- 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

#### Planning and Carrying Out Investigations

- 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

### **Motion and Stability: Forces and Interactions**

#### Asking Questions and Defining Problems

- 3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.
- 3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.

#### Planning and Carrying Out Investigations

- 3-PS2-2 Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

- 3-PS2-1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

## English

### Reading: Informational Text

#### Integration of Knowledge and Ideas

- CCSS.ELA-LITERACY.RI.3.9 - Compare and contrast the most important points and key details presented in two texts on the same topic. (CCSS.ELA-LITERACY.RI.3.9)

#### Key Ideas and Details

- CCSS.ELA-LITERACY.RI.3.1 - Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (CCSS.ELA-LITERACY.RI.3.1)
- CCSS.ELA-LITERACY.RI.3.2 - Determine the main idea of a text; recount the key details and explain how they support the main idea. (CCSS.ELA-LITERACY.RI.3.2)

## Writing

### Production and Distribution of Writing

- CCSS.ELA-LITERACY.W.3.4 - With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1-3 above.) (CCSS.ELA-LITERACY.W.3.4)
- CCSS.ELA-LITERACY.W.3.5 - With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 3 here.) (CCSS.ELA-LITERACY.W.3.5)

### Text Types and Purposes

- CCSS.ELA-LITERACY.W.3.2 - Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (CCSS.ELA-LITERACY.W.3.2)



## Prior learning

Pre-unit survey about inventions (words and sketches)

Pre-unit survey force, magnetism, gravity



## Connections: Transdisciplinary and past

Physical Education: Students will learn how different forces and motion change with different sports skills. They will learn how the use of different forces changes the motion of the object they are using. They will apply this to kicking (soccer), striking with an implement and throwing skills.



## Teacher questions

Why do people invent?

What is the difference between invention and innovation? (invention is something new vs innovation which is adapting and making better an existing item) - Jeff

How are inventions modified to make them better?(See Above, but this might be a perfect time to talk about the difference between invention and innovation. - Jeff)

What is the process of invention? (creating, recording and understanding data, trial and error, accident, etc.)

What is a fair test?

What properties of magnets and gravity can be used for invention?

What is the impact of this invention on society and/or the environment?

## Implementing



### Learning experience library



#### #12 Identify: IDEO Shopping Cart Video

Amy Rios

condom reference between 4:47 and 4:52



#### #11 Explore - How Liquids Impact a Magnet Experiment

Amy Rios



#### #10 Explore- Pebble Go Inventors and Inventions

Amy Rios

Pebble Go -

Biographies-Inventors and Business Leaders

Science-Important inventions

Science-Science and Engineering Practices

Pebble Go Next -

Social Studies - Technology and Society

Science - Technology - Computers



#### #9 PART 1 Explore - The Discovery of Magnets

Amy Rios



#### #8 Explore Magnetism - Paperclip Chain

Amy Rios

Students will temporarily make paperclips magnetic! Check out the link for the materials and procedure.



#### #7 Explore Brain Pop

Amy Rios

##### Brain Pop Jr.

Science-Forces (5 videos, including Magnets)

Science-Pushes and Pulls

Brain Pop

Motion, Forces and Time (24 videos)



#### #6 Immerse- Magnets

Amy Rios

**#5 Immerse: Frisbees**

Amy Rios

Have students work in groups and experiment with different types of frisbees. Between rotations, discuss results (How well did it fly? What material was it made from?, etc.).

**#4 Immerse- Latino Inventors**

Amy Rios

**#1 Open: Ellen Degeneres Kid Inventor**

Amy Rios

Show the 2 videos of kid inventors on Ellen.

Ask students...

-what did these kids invent?

-why did they invent them?

-what are examples of other inventions/inventors that you can think of?

Cool inventions video - kids can be inventors too. Innovate to solve problems.

**IRA - UOI Text Set**

Amy Rios

**#12 Identify - Determine a Problem**

Amy Rios

Choices:

- Shopping cart:

Shopping cart video. Examples of problems are given, kids can generate more problems. Students create ways to innovate the shopping cart.

- Innovating Games

What games do you play or watch? Make a list of games and sports. What makes them fun or exciting?

What would make them more fun or exciting? Are there any boring parts? Problems?

- Invention/Innovation based on a everyday problem

Make a list of things that kids use every day, think about how to make them better. What are some problems that you encounter? What do you use and could it be better?

**RML LA U14: Thinking About the Topic in Nonfiction Books (6)**

Amy Rios

LA.U14.RML1: Writers have opinions about the topics they write about.

LA.U14.RML2: Think about why the topic of the book is important.

LA.U14.RML3: Think about what you know about a topic before you read and what you learned after you read.

LA.U14.RML4: Sometimes authors divide a topic into smaller topics.

LA.U14.RML5: You can learn about the same topic from several nonfiction books.

LA.U14.RML6: Think about the quality and accuracy of the nonfiction books you read.

**#13 (Multiple Days) Gather and Create -**

Amy Rios

- Shopping cart example whole class and then ask students to think about something they use every day that they could improve.
- Innovate a game - wiffle ball, frisbee, a card game, etc.
- Identify a problem and create a solution (drawing or model)
- skimmer boat challenge
- maglev challenge (only if someone magical gets the two pages of materials)



### RML LA U12: Studying Biography (7)

Amy Rios

- LA.U12.RML1: Biographies are alike in many ways.
- LA.U12.RML2: The definition of biography is what is always true about it.
- LA.U12.RML3: A biography is the story of a person's life written by someone else.
- LA.U12.RML4: The author includes facts about a person's life.
- LA.U12.RML5: Think about why the author wrote a book about the person.
- LA.U12.RML6: The author usually tells about a person's life in the order it happened.
- LA.U12.RML7: The author of a biography gives an important message.



### RML LA U23: Understanding Character Feelings, Motivations, and Intentions (4)

Amy Rios

- LA.U23.RML1: What the characters think, say, and do shows how they are feeling.
- LA.U23.RML2: What the characters say and do shows how they feel about each other.
- LA.U23.RML3: Think about what the characters really want.
- LA.U23.RML4: What you know about the character can help you predict what the character will do next.



### #9 PART 2 (same day as Part 1) Explore - Magnetism

Amy Rios



### Epic Book List

Amy Rios



### RML WAR U2: Using a Reader's Notebook (6)

Amy Rios

- WAR.U2.RML1 Make a list of the books you want to read.
- WAR.U2.RML2 Make a list of the books you recommend.
- WAR.U2.RML3 Write a book recommendation.
- WAR.U2.RML4 Tell how a book reminds you of another book.
- WAR.U2.RML5 Keep a tally of the kinds of writing about reading you do in your notebook.
- WAR.U2.RML6 Put the minilesson principles in your reader's notebook so you can use them when you need to.



### #14 Evaluate: Innovation Rubric

Amy Rios

Students use rubric to plan their innovation projects, and then use them again after presenting to self-assess. Teacher uses same rubric sheet to assess students.



### #3 Immerse: Brain Pop: Engineering and Design Process video (5:00)

Amy Rios

**RML LA U11: Studying Informational Books (4)**

Amy Rios

LA.U11.RML1: Informational books are alike in many ways.

LA.U11.RML2: The definition of an informational book is what is always true about it.

LA.U11.RML3: The author of an informational book gives facts about a topic.

LA.U11.RML4: The author of an informational book organizes the facts in several ways.

**Immerse OPTIONAL - 11 Kid Inventors Break Down Their Greatest Inventions | The New Yorker**

Amy Rios

**#1 OPTIONAL Open Video: Kid Creations**

Amy Rios

**#2 Immerse-What is technology?**

Amy Rios

Discussion: What is technology? (something that makes our lives easier)

Idea: could show a variety of pictures and say that all of these are in a group together (could also contrast with a group of things like trees, dirt, etc) and discuss why are they together. After generalizing to that they make life easier, could introduce term technology. Reinforce not just electronic examples.

**Learning experiences**

Library19-20:Students will learn about making choices and responsibilities that demonstrate the IB attributes of risk-taker and being principled. Books will be introduced to illustrate being responsible and being caring individuals who show respect for our library materials. Books- Responsibility By- Lucia Raatma Citizenship By- Lucia Raatma

**Resources**

- [ABC Nightline - IDEO Shopping Cart](#)
- [ABC Nightline - IDEO Shopping Cart](#)
- [G3 HTWW Puentes Book Collection on Epic](#)
- [LA U12-Studying Biography \(7\)](#)
- [LA U14-Thinking About the Topic in Non-Fiction Books \(6\)](#)
- [LA U11-Studying Informational Books \(4\)](#)
- [LAU23- Understanding Character Feelings, Motivations, Intentions \(4\)](#)
- [WAR U2-Using a Reader's Notebook \(6\)](#)
- [G3 HTWW Book Collection on Epic](#)
- [IRA Whoosh!](#)
- [Innovations Rubric](#)
- [2019 Summer Academic Support Confirmation-English](#)

- [!\[\]\(97d7445697a94970d6443da16b12b5fa\_img.jpg\) The Discovery of Magnets](#)
- [!\[\]\(258b828d223cb6b35d2b001cf8c6c1e7\_img.jpg\) Magnetism | #aumsum #kids #science #education #children](#)
- [!\[\]\(3ae3791b31be30fab239cd4ec63dfafe\_img.jpg\) Science Max | MAGNETS - PART 1 | Science Max Season1 Full Episode | Kids Science](#)
- [!\[\]\(7835479178eea406b1967e30c6fcf845\_img.jpg\) How Liquids Impact a Magnet Experiment](#)
- [!\[\]\(bacea8e86e4e71bdd65916e2330bb152\_img.jpg\) Fun with Magnets!](#)
- [!\[\]\(103e1d41c49e54d33b8438f1f22779e7\_img.jpg\) Use a Magnet to Make a Paperclip Chain Science Experiment](#)
- [!\[\]\(127f84612f2d3af1475c40eb1d227d82\_img.jpg\) 11 Kid Inventors Break Down Their Greatest Inventions | The New Yorker](#)
- [!\[\]\(bd481c0ca3cf419dd12c334e7c6134ef\_img.jpg\) 💡 INVENTOS e INVENTORES - canción divertida para niños - 123 Andrés "Una idea tengo yo"](#)
- [!\[\]\(4bad89d7f2d54a9dd8d439405672b516\_img.jpg\) La Tecnología - Canción para niños - 123 Andrés - Ciencia y naturaleza](#)
- [!\[\]\(ca5efa1fd99f0257579e9142bacd2556\_img.jpg\) All About Cool Inventions! | Nat Geo Kids Cool Inventions Playlist](#)
- [!\[\]\(aa9ef994bed7fa38b15a4e5e70bf6ae9\_img.jpg\) 5 Famous Latinos for Kids: Hispanic Heritage Month](#)
- [!\[\]\(74566d81d00a0219b912a74e95a75e40\_img.jpg\) 10 Inspiring Hispanic Inventors \(and Crafts for Kids!\) • Bilingually Yours](#)
- [!\[\]\(943144c6978039e9c05c786b37ec3129\_img.jpg\) Latino Inventors They Don't Teach You in School](#)
- [!\[\]\(9d3999dbe4ca37ffcfab8efdd4c45b35\_img.jpg\) tech example:non examples](#)
- [!\[\]\(5ae02fd6274c2483590d6012e3d04afa\_img.jpg\) PebbleGo](#)
- [!\[\]\(e5570f5f748ac88f4e736b3266532731\_img.jpg\) PebbleGo](#)
- [!\[\]\(87b4db5879b0730071a0d46329036123\_img.jpg\) What is Technology?](#)
- [!\[\]\(b08001ae99ef206fa4f9af57f20865f1\_img.jpg\) CT Invention Convention](#)
- [!\[\]\(854c302f4c2b1fa304f37352e1f6040c\_img.jpg\) CT Invention Convention](#)
- [!\[\]\(db2e055846185a85e7727455d0ebb2c6\_img.jpg\) PebbleGo](#)
- [!\[\]\(f94e2b1e8b460412680111ec8ab42956\_img.jpg\) PebbleGo](#)
- [!\[\]\(e1994e58386436a56e274b4794576284\_img.jpg\) All About Cool Inventions! | Nat Geo Kids Cool Inventions Playlist](#)
- [!\[\]\(c297745f2265c49f12f422c1d0e3faf3\_img.jpg\) 21 Inventions and Firsts That Originated From Connecticut — Local Connecticut](#)
- [!\[\]\(88ebdcdd4a6cf8af176ba422814aa6a7\_img.jpg\) Engineering and Design Process - BrainPOP Jr.](#)
- [!\[\]\(78d629f5c51fa974fa2b686e68b5e10a\_img.jpg\) Great Kid Inventions!](#)
- [!\[\]\(79d1eb3b4ad4722eca75d35d916a40b9\_img.jpg\) Brilliant Kid Inventors!](#)
- [!\[\]\(ea49966dec3db5f47646d404956733d2\_img.jpg\) Brilliant Kid Inventors!](#)
- [!\[\]\(aac249bef4c11a70843828fb0e5ba317\_img.jpg\) 5 Amazing Kid Inventions](#)

## Reflecting



### Teacher reflections

#### Ongoing reflection

**Lucy Ann Regan** • 2:26 pm, 16th Nov 2023

Read alouds. HOTS sessions on puppetry and songwriting woven in the themes of innovations, creativity, inventiveness, and force and motion. Videos on magnetism and Kid inventors. Exploration of magnets.

They were inquirers and risk-takers working with their partners to create puppets, write songs, and present their work to classmates.

Lauren in P.E. is working on throwing and catching- force and motion.  
Kevin in music did something, too.