**ESCI 317 Fall 2018, Resource Collection**

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1. **Topic:** Forces and motion games and activities.

**Citation:** **https://study.com/academy/lesson/force-motion-games.html**

**Description:** This website has a huge collection of resource for the teacher and students. They want you log in and make an account. They are a lot of free stuff after you log in., they are beautiful games that students can play in the idea of teaching motion.

**Application of the unit:** Good resource for both the teachers and students.

**Outcome**: FM5.1 and indicators A, b, and C.

1. **Topic**: Motion

Citation: <https://youtu.be/yUp4W9htmuY>

**Description:** This is a simple song explaining the Newtons Laws of motion. It can be used as a hook for the lesson of motion.

**Application for the Unit:** [lesson one]-students

**Outcome:** FM5.1 and indicators A, b, and C.

1. **Topic**: What is motion in Science?

**Citation**: <http://www.skwirk.com/p-c_s-11_u-399_t-990_c-3787/types-of-motion/nsw/science-technology/forces-and-their-effects/motion-and-equilibrium>

**Description:** This is a n online educational Website. It has a lot of resources that can be used for teaching in this topic of motion and other science related topics. The types of motion are clearly explained.

**Application for the Unit:** Teacher resource website.

**Outcome:** FM5.1

**Indicators:** A, b, c

1. **Topic**: What forces causes an objects motion to change? Lesson two.

**Citation:** [**https://youtu.be/8iKhLGK7HGk**](https://youtu.be/8iKhLGK7HGk)

**Description:** This a Bill Nye the science guy video, explaining what forces cause an object move, nothing get moving unless pushed or pulled.

**Application for the Unit:** Students

**Outcome:** FM5.1 and indicators- b, c, and d.

1. **Topic:** Forces -Gravity

**Citation:** [**https://spaceplace.nasa.gov/what-is-gravity/en/**](https://spaceplace.nasa.gov/what-is-gravity/en/)

**Description:** This an amazing NISA website describing what gravity is and how it takes place with beautiful short videos. It is useful resource for both teachers and students.

**Application for the Unit:** lesson (4)

**Outcome:** FM5 and indicators 1 A, B, C, and D

1. **Topic:** Forces- Gravity

**Citation**: <https://youtu.be/iNa4Ke0cMQg> { Bill Nye-The science Guy}

**Description**: This video extensively explains what involves gravity, its advantage and what factors affect gravity. This resource is for students as it explains how and what gravity entails.

**Outcome**: FM5.1 and indicators- A, b, c and d.

1. **Topic:** Gravity- advantage and disadvantage

**Citation:** <https://www.quora.com/What-are-the-advantages-and-disadvantages-of-gravity>

**Description:** This website is explaining the advantage and disadvantages of gravity scientifically. It is a resource for teachers, it also has ASK question part where you will get an answer from expert.

**Application for the unit:** Lesson 4- Teacher resource.

**Outcome:** FM5.1 and Indicators A, b, c, and d

1. **Topic:** Gravity experiments

**Citation**: <https://buggyandbuddy.com/gravity/>

**Description**: The website has a fun way kids to explore gravity. Kids will observe how always gravity pulls things towards earth by using a paper clip and string. Then the supper cool part kids will use magnet to how forces overcome gravity. It is called defying

gravity.

**Application for the unit**: Student activity.

**Outcome**: FM5.1 and indicators a, b, c and d.

1. **Topic**: Forces Friction:

**Citation**: https://youtu.be/U5f7SyvHUac

**Description**: Friction song- This a cool way of introducing the topic. The song has very beautiful music and it explains what friction is all about? Why we need friction? Where does friction occur. What is bad with friction?

**Application for the unit**: Good for hook in introducing friction to students. {Lesson 5}

**Outcome**: FM5.1 and indicators, G, h, and I

1. **Topic**: Force Friction

**Citation:** <https://youtu.be/PNDRIicw4E0>

**Description:** This video is an animated video clearly explaining when friction can take place, and why it takes place. The difference between rough and smooth surfaces and which one friction easily takes place. Where do we use in real-life situation friction? Why are tires rough? It is a perfect source for students.

**Application for the unit:** {lesson 5} student resource.

**Outcome:** FM5.1 and indicators, G, h, and I

1. **Topic:** Force- friction

Citation: <https://www.khanacademy.org/partner-content/49ers-steam/science-behind-the-game/force-and-motion/a/49ers-force-frictional-force-experiment>

**Description:** This website has a lot of resources on the topic of forces. This is a simple experiment on frictional forces. Students do this experiment to find out what factors affect frictional forces. It includes, prediction, observation, and conclusion.

**Application for the Unit:** Lesson 5- for students

**Outcomes.** FM5.1 and indicators G, H AND I.

1. **Topic:** Friction and engineering connection

**Citation:** https://www.teachengineering.org/activities/view/cub\_human\_lesson03\_activity1

**Description:**

Many machines that engineers use have joints like our body joints. Engineers use lubricants fluids to reduce friction, but our body uses synovial fluids in order our joints to move:

After this activity, students should be able to:

* Define and describe friction in everyday life.
* Relate friction to bones and joints in the human body.
* Explain what the human body and engineers do to reduce friction.
* Describe how the astronauts learn to work without friction in outer space.
* **Application for the Unit:** How frictions can be reduced lesson 6. Activity for students

**Outcome:** FM5. 1 and FM5.3, g, h, I, and FM5.3 indicator d

1. **Topic:** Friction and fire making in Aboriginal culture

**Citation:** http://www.aboriginalculture.com.au/fire-making.html

**Description:** This resource is good for treaty education connection and history of fire-making in Aboriginal culture. The resource explains the various ways of making fire in the past. It is good resource for the teachers.

**Application for the unit:** Lesson 6

**Outcome:** FM5. 1 and FM5.3, g, h, I, and FM5.3 indicator b, d.

1. **Topic:** Simple Machines

**Citation: https://youtu.be/yNUgbdsWSm4**

**Description:** This a simple nice animated song to introduce the topic simple machines, it has nice music and visual that show how simple machines make our work easier. It is a good to use for a hook when introducing the lesson.

**Application for the Unit:** Lesson 7- resource for students

**Outcome:** FM5.2 and indicators A, b, c

1. **Topic:** Simple Machines

**Citation: https://youtu.be/fvOmaf2GfCY**

**Description:** This video discusses the types of simple machines. They are six types of simple machines, levers, Wheel and axle, inclined planes, wedge, and screws. The categories of these simple machines and how they can be combined to make a complex machine. The instance we can see in our environments.

**Application for the unit:**  Lesson 7- resource for students

**Outcome:** FM5.2 and indicators A, b, c

1. **Topic:** Simple Machines

**Citation:** https://www.learninggamesforkids.com/simple-machines-games.html

**Descriptions:**  This website has a lot of different games, and fun activities kids can engage and learn simple machines. It also has video that explain the concept of simple machines. It is a resource which is good for teachers and students. The games a re simple and mobile friendly.

**Application on the unit:** Lesson 7

**Outcome:** FM5.2 and indicators A, b, c

1. **Topic:** How can levers help you move objects?

**Citation: https://quatr.us/physics/levers-simple-machines-physics.htm**

**Description:**  People have used levers millions of years ago. It helped lift heavy loads. The arrows and bows are good example of levers. This website with videos explains how levers moves objects.

**Application for the Unit:** lesson 8, resource for both students and teachers.

**Outcome:** FM5.2 and FM5.3 and indicators a, b, c, e, and f.

1. **Topic:** The types of levers

**Citation: https://youtu.be/wf\_8O\_3tvO8**

**Description:** There three types of levers: Class one, two, and three and their examples. The video also gives explanation where the force, fulcrum and load. This resource is good for the students as it gives clear examples of the three classes.

**Application for the Unit:** Lesson 8- good resource for the students.

**Outcome:** FM5.2 and FM5.3 and indicators a, b, c, e, and f.

1. **Topic:**  How can inclined plane, a wedge, and pulley help move objects?

**Citation: https://slideplayer.com/slide/7893570/**

**Description:** The resource from this website focuses the mechanical advantage o the simple machines inclined planes, a wedge, and pulley. The website has videos that explain and describe in mathematical formula of the mechanical advantages in each machine.

**Application for the Unit:** Lesson 9 the unit- good resource for the teacher and students.

**Outcome**: FM5.2 and FM5.3 and indicators a, b, c, and f.

1. **Topic:** Simple machines

**Citation: {book}** Katz, J. (2013). *A model unit for grade 5: Aboriginal innovations: First peoples, simple machines: Tools for instruction and reading assessment*. Winnipeg, MB: Portage & Main Press.

**Description:** This is very beautiful resource for the unit of simple machines in grade5 and it can give all that you need for Aboriginal innovation of simple machines. It also gives an idea of how you will use this book in a school year. It is a perfect one for cross curricular subjects.

**Application for the Unit:** This is a perfect teacher resource. For all lessons in this unit and many other subjects like social study.

**Outcome:** FM5.2 and FM5.3

1. **Topic:** Simple machines story

**Citation: https://youtu.be/m7Yh0yjNtM8**

**Description:** This is a very beautiful short about simple machines and it is Megan going around her town and identifying the number of simple machines she can identify at home and in the neighbourhood. It is nice way of engaging kids to learn simple machines and their real-life use at home and in the community.

**Application for the Unit:** lesson 9- resource for kids

**Outcome:** FM5.2 and FM5.3 and indicators a, b, c, and f.

1. **Topic:** Simple Machines- Online Free books

**Citation: https://www.storyjumper.com/book/index/18064988/SIMPLE-MACHINES#page/4**

**Description:** These are online free text books based on the topic of simple machines.

**Application for the Unit:** Lesson 9- student resource.

**Outcome:** FM5.2 and FM5.3 and indicators a, b, c, and f.

1. **Topic:** History and use of Catapult

**Citation:** **https://sites.google.com/site/physicsofcatapults/home/history-of-catapults**

**Description:** This website is explaining the history and use of catapult as a machine.

**Application for the Unit:** Lesson 10- Teacher Resource.

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic:** Building a catapult

**Citation:** **https://www.teachengineering.org/activities/view/cub\_catapult\_lesson01\_activity1**

**Description:** In this simple activity, the students can build catapult and participate an activity of hitting a target. The catapult can be made from simple locally available materials. The kids will learn the process of designing, building, and testing a simple machine.

**Application for the Unit:** Lesson 10- resource for students.

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic:** Catapult and its mechanical advantage

**Citation:** **https://youtu.be/yhzMYHiuEC4?list=PLdfXRoPkoGdvM8gAss7gzUuN\_bvKGo25w**

**Description:**  This video of Bill Nye explaining the mechanical advantage of catapult.

**Application for the Unit:** Lesson 10- Resource for student

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic:** Catapults and its types.

**Citation: https://sites.google.com/site/nicolasduronioscatapultproject/home/3-main-types-of-catapults**

**Description:** The three types of catapult and how it is used in the past.

**Application for the Unit:** Lesson 10- teacher resource

**Outcome**: FM5.3 and indicators a, b, c, and f.

1. **Topic:** The agricultural use of simple machines

**Citation:** **https://aitc.sk.ca/resources/find-order-resources**

**Description:** This website will connect the use of simple machine in the farms and how that help us produce food that we need.

**Application for the Unit:** Lesson 10, student and teacher resource.

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic:** Simple Machines song with movements- Work song.

**Citation: https://youtu.be/YTNBsqQo3qA**

**Description:** This is three minutes song that help kids get the concept of simple machines, and engage actively in moving their bodies.

**Application for the unit:** Lesson 10- student resource.

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic: simple machines**

**Citation:** **https://www.smore.com/ugbz4-simple-machines**

**Description:** This is very beautiful website for simple machines, the website has videos explaining each simple machine in use. It also links scholastic website with a lot of resources. In short this is great website that has a collection of all that you need to teach simple machines.

**Application for the Unit:** Lesson 10, good for both teachers and students- great resource.

**Outcome:** FM5.3 and indicators a, b, c, and f.

1. **Topic: Simple Machines**

**Citation:** [**https://www.spiritsd.ca/learningresources/FNM%20Resources/GR5%20Forces%20and%20Simple%20Machines%20(2).pdf**](https://www.spiritsd.ca/learningresources/FNM%20Resources/GR5%20Forces%20and%20Simple%20Machines%20%282%29.pdf)

**Description:** This Unit plan of simple machines in grade 5. It was prepared by Jodi from Prairie school division. It is all about how to integrate First Nation and Métis content and perspective in grade 5unit forces and simple machines. The importance of medicine wheel and other important things in First Nations and metis culture.

**Application for the Unit:** good resource for the teacher for the entire unit of forces and simple machines.

**Outcome:** FM5.1, FM5.2 AND FM5.3and all indictors of these outcomes.