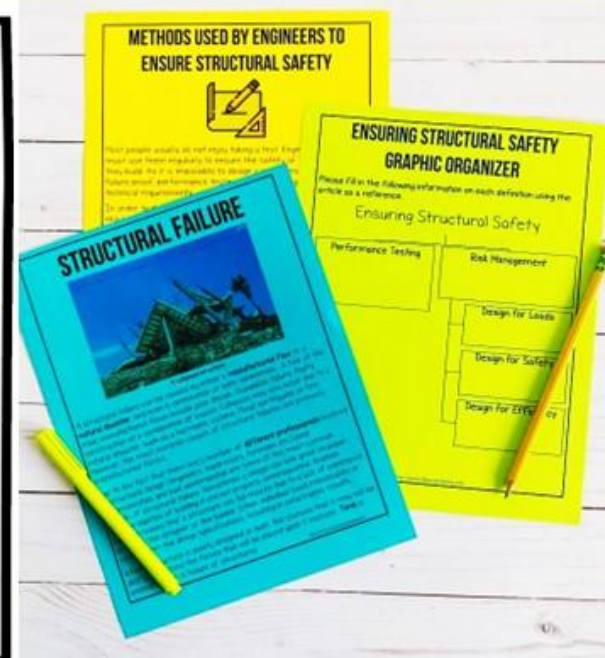


GRADE 6/7 SCIENCE BUNDLE PDF & DIGITAL FORMATS

RESOURCE INCLUDES

1. 8 Units
2. 118 Lessons
3. MP3 Audio Files
4. Hands-On Labs
5. Inquiry Activities
6. Print & Digital Formats
7. Student Choice
8. Detailed Lesson Plans
9. Quizzes & Unit Tests
10. Assessment Rubrics
11. 8 Digital Escape Rooms
12. Aligned to the 2022 Ontario Science Curriculum



**2022 ONTARIO
CURRICULUM**

Bundle

- ✓ 8 Units
- ✓ 118 Lessons
- ✓ MP3 Audio Files
- ✓ Hands-On Labs
- ✓ Inquiry Activities
- ✓ Print & Digital




2 Peas and a Dog
Middle School Teaching Resources

WHAT ARE TEACHERS SAYING

“Great resource to cover all units. I like that it also includes video links of the topics.” – MsL4.

“Always a good, comprehensive resource. Thank you!” – Sofie C.

RESOURCE OVERVIEW

- ✓ This 8-unit bundle will help you teach Grade 6/7 Science without a textbook.
- ✓ Students will love these engaging and differentiated units that cover Electricity, Space, Flight, Biodiversity, Interactions in the Environment, Heat in the Environment, Pure Substance and Mixtures as well as Understanding Structures and Mechanisms.

WHAT'S INSIDE?



DETAILED LESSON PLANS

INTRODUCTION



Unit Vocabulary

Lesson Overview:

Students will work on reviewing vocabulary for this unit.

Materials Needed:

- Video: [Solar System 101 – National Geographic](#)
- Photocopy a class set or use the provided Google Slides version of the following:
 - Vocabulary sheets (QR Code or Non-QR Code option)
 - Vocabulary graphic organizer
 - Definitions (For IEP and ESL students)
 - Definitions Google Slides

Teacher Instructions:

1. Watch the video [Solar System 101 – National Geographic](#) to introduce this topic.
2. Hang the vocabulary words up around the classroom or hallway using the QR code or non-QR code format.
3. Divide the class into groups of 4.
4. Have students walk around the classroom or hallway and find the vocabulary sheets. Students need to scan the QR code with their phones to uncover the mystery word. Once they have uncovered the mystery word, have them write it on the vocabulary graphic organizer.
5. Once students have completed this activity, discuss the definitions as a class using the provided slideshow or definitions sheets.

LESSON #8



Components of Electrical Circuits

Lesson Overview:

Students will learn about the essential parts of an electrical circuit.

Materials Needed:

- Computer with projector/speakers
- Video #1 – [Circuit diagram – Simple circuits – Electricity and Circuits – Don't Memorise](#)
- Photocopy a class set or use the provided Google Slides of the:
 - Understanding Electrical Circuits article
 - Drawing Electrical Circuits worksheet

Teacher Instructions:

1. Watch the video, [Circuit diagram – Simple circuits – Electricity and Circuits – Don't Memorise](#).
2. Then, hand out the article and read it out loud.
3. After, hand out the worksheet and have students complete it individually. You may use the sample answer sheet to provide them with an example, or you can use it after to take-up answers.
4. Have students share the different circuits they created by describing or showing (using a document camera) their drawings to the class.

LESSON #11



Benefits of Technologies with Heat

Lesson Overview:

Students will analyze the social and environmental benefits of technologies that reduce heat loss or transfer.

Materials Needed:

- Reliable technology (internet, computer, and projector)
- Photocopy a class set of each or use the provided digital copies:
 - Helpful Website sheet
 - Technologies that Reduce Heat Loss reading
 - 4 graphic organizers – Insulated Clothing, Building Insulation, Green Roofs, and Energy-Efficient Buildings
 - Share Your Thoughts reflection sheet

Teacher Instructions:

1. Provide students with technology to research the provided four topics – Insulated Clothing, Building Insulation, Green Roofs, and Energy Efficient Buildings.
2. Students can use the provided websites and their own findings to complete the graphic organizer for each topic.
3. Please review each website before using it as a class to ensure it meets the needs of your students.
4. Provide students 0.5 class period per topic of research time to complete the graphic organizer.
5. Discuss the answers as a class once students have researched each topic.

WHAT'S INSIDE?



READINGS

STUDENT READINGS COME WITH MP3 AUDIO FILES

118 LESSONS

TECHNOLOGIES THAT REDUCE HEAT LOSS



Why are technologies that reduce heat loss important for both the society and the environment, and how do they keep heat in. This is because we want to ensure sustainable ways to keep the Earth protected and our bodies are warm too. There are a variety of technologies that help to reduce heat loss and energy consumption.

Technology Examples

For example, insulated clothing is used to protect people from the cold and keep them warm when we are outside in winter. Insulation makes pockets of air in the clothing that help to keep people warm. Insulating homes or buildings helps to keep heat in or reduce heat loss. An insulated house is more comfortable because it blocks the outside cold temperatures. A relatively newer technology is double-pane windows that provide less insulation but also keep a lot of heat in. They are also visually appealing. Finally, energy-efficient light bulbs are good for the environment and make it difficult for heat to pass through the buildings. These technologies help us stay more comfortable and warmer, as well as reduce greenhouse emission on the environment.

ECOLOGICAL SUCCESSION



Ecological succession is when an ecosystem goes through gradual changes in its ecological community over a long period of time. An ecological community refers to different species or populations of plants, insects, and animals living and interacting in an ecosystem.

Succession can happen when new species replaces other species in an ecosystem. These shifts in different species in the community do not happen quickly. Ecological succession is a natural and gradual process that is usually caused by natural events, such as volcanic eruptions, floods, and earthquakes, but it can also be due to deforestation, fire or pollution.

There are two types of ecological succession: primary succession and secondary succession. The main difference is in the starting point of each one. Primary succession usually happens in barren areas that become colonized by living organisms for the first time. Secondary succession refers to the re-colonization of an area previously occupied by living things that were disturbed by some disastrous event. An example of secondary succession would be after a forest fire, when new plants appear to replace burned plants.

Primary Succession

Primary succession occurs when living organisms move into a new area that was previously uninhabited and barren. These areas usually do not have topsoil and are rocky. An example of this is the rocks formed after a volcanic eruption when lava dries up, creating a rocky surface. When volcanic eruptions happen underwater, they eventually form new islands on the water's surface.

SOLUTIONS AND SOLUBILITY



Solubility
The ability for a solute to dissolve in a solvent. For example, oil and water. The solute is insoluble. Salt and water solution.

Some factors that affect solubility are temperature and polarity. If the temperature is higher, the solute dissolves more quickly. For example, boiling water, the tea bag dissolves faster than in the boiling water.

Pressure mostly affects gases. The gas solute (carbon dioxide) keeps the can closed, the pressure is high, and the solubility is high.

If a solute has a specific charge, it will depend on the polarity of the solvent. Polar water are considered "polar" (oppositely charged).

FACTORS IN DESIGNING & BUILDING STRUCTURES



Similar structures can have different forms (e.g., not all bridges are arches).

Many factors must be considered when designing a structure.

How Form Fits Function

When a product is designed with a simple function, it is easier to understand the link between form and function. For example, a bookshelf that is designed to support a small load has shelves that fit the intended load.

However, when a structure has a more complex function, multiple variables, like a bridge, the form becomes more complicated. Even though most bridges allow people to cross the amount of water to be crossed, as well as other factors, will vary depending on the location. This is because although the function (purpose of the structure) is the same, the form could vary depending on things like terrain and elevation.

LIFE IN SPACE

Space Sleeping

The ISS is not a quiet place, so many astronauts wear earplugs and a sleep mask when they sleep. Each person is allotted 8.5 hours a day to sleep, but many feel rested after 6 hours.

Sleeping is different in space due to the lack of gravity. Each person has a sleep station, which is a personal compartment that has a sleeping bag, pillow, air vent, and space for their personal belongings. This sleep station keeps the astronauts from floating around when sleeping.

The Bathroom

Going to the bathroom in space is different than on Earth. The toilet in space looks like toilets on Earth; however, when using it, astronauts strap themselves to it and use a device that sucks away urine. For solid waste, there is a special bag in the toilet and a vacuum that mimics gravity. The bag is sealed and disposed of in a waste compartment.

Saving Water

Water is limited in space. Astronauts must change some hygiene practices, so they are not using water. For example, using electric razors allows for shaving and hair cutting while using no water. To collect the hair, a tool is used that has a built-in vacuum for collection before hair floats away.



Many astronauts choose to use edible toothpaste while in space.

Astronauts can use the same toothpaste as on Earth, but because it needs to be rinsed with water, most choose to use an edible toothpaste.

When astronauts clean their faces and hands, they use a wet towel that contains liquid soap or alcohol (similar to hand sanitizer). The shampoo they use is waterless, so it does not need any water for rinsing.

There is no way to wash laundry on the ISS. Instead, astronauts wear their clothes until they are dirty and then throw them out.

Space Life

There's no doubt living in space is very different from living on Earth. However, thanks to some innovative thinking, those living in space can continue to do the things they do at home, just with some special space changes.

WHAT'S INSIDE?



ASSIGNMENTS, LABS & GRAPHIC ORGANIZERS

118 LESSONS

PAPER AIRPLANE LAB



Instructions: You are going to create two paper airplanes and test their properties of flight.

- Materials Needed:
- 8.5" x 11" Paper
 - Scissors
 - Rulers
 - Metrestick or tape measure

- What do I need to do?
1. First, watch the videos provided by the teacher.
 2. Then, practice folding The Basic Dart paper airplane several times. Once you feel that you can fold it correctly, create your final copy of The Basic Dart paper airplane.
 3. Create your final copy of The Basic Dart paper airplane.
 4. Then, design a second paper airplane. You can use the Lock-Bottom fold design or your own.
 5. Practice folding several times. Once you feel that you can fold it correctly, create your final copy paper airplane, tell your teacher.
 6. Create your final copy of your second design paper airplane.
 7. Your teacher will let you know when it is time to test your paper airplanes.
 8. Complete the Procedure section of your lab report.
 9. After you have tested your two paper airplanes, complete the Paper Airplane Lab graphic organizer.
 10. Then complete the lab report write up of your Paper Airplane Lab Assessment.
 11. Submit the graphic organizers, your paper airplanes, and the Paper Airplane Assessment sheet to your teacher when you have completed all of the requirements for this lab.

PAPER AIRPLANE LAB	
<p>Observations & Reflections</p> <ol style="list-style-type: none"> 1. Test out each paper airplane design three times. 2. Record the distance in centimetres or metres of each flight. 	
Paper Airplane Design #1	Paper Airplane Design #2
Test Flight 1	Test Flight 1
Test Flight 2	Test Flight 2
Test Flight 3	Test Flight 3
How do you think the design differences affected the flight of your paper airplanes?	
What design differences did you make between the two paper airplanes?	
Why did you make those changes?	

SERIES OR PARALLEL CIRCUITS?

Using the article to help you, explain each diagram in the chart.

Electrical Circuit Diagram	Name	Explain Why It Is This Type Of Circuit

ENERGY CONSERVATION ASSIGNMENT



Your Task: Create an engaging and informative video, brochure/pamphlet, advertisement, infographic, etc.) to showcase energy conservation in your school.

Energy Conservation	
Science Content	<p>Level 1</p> <p>Visual presentation explains one way that people could save energy or electricity.</p> <p>Information may need more detail and could be incorrect or inaccurate.</p>
Media Literacy	<p>Visual presentation needs more teacher support.</p>
Citing Sources	<p>No sources cited.</p>

TYPES OF SATURATED SOLUTIONS

Instructions: Use the article to help complete this chart. Shade-in the beaker to provide a visual example of what it would look like.

Type	Definition	Visual Example
Unsaturated Solution		
Saturated Solution		
Supersaturated Solution		

WHAT'S INSIDE?



ANSWER KEY

- When you clean-up, wash your hands with just water. T F
- Before you begin, you must listen to ALL the teacher's instructions. T F
- Remember to tie-up any loose items (e.g. hair, clothing, jewelry, etc.). T F
- Feel free to taste test items in the science room.
- Knowing where the safety eyewash station is located is not important.
- Do not bother reading your procedure, just make it up.

SAMPLE ANSWERS

All ecosystems have a maximum number of a species that can exist, also called **carrying capacity**. This is due to **limiting factors**, such as available sunlight, climate, temperature, food, water, available habitats, predators and mates. If these essential elements are not met then the species will start to decline and die off.

Watch the video "Ecological Carrying Capacity". Then explain what happens when too many fish live in the bowl.

- Fish die due to limited resources (food and space).
- Because they have reached the carrying capacity.
- The deaths outnumber the births until

Watch the video "Limiting Factors in an Ecosystem". Then explain what the limiting factors are in the fish bowl?

VOCABULARY QR CODE ANSWERS

CARD NUMBER	VOCABULARY WORD
1	Centre of Gravity
2	Combination Structure
3	Compression
4	Dynamic Load
5	Ergonomics
6	External Force
7	Force
8	Form
9	Frame Structure
10	Function
11	Gravity
12	Internal Force
13	Load
14	Point/Plane of Application
15	Shear
16	Shell Structure
17	Solid Structure
18	Stability
19	Static Load

GLOBAL WARMING ASSESSMENT

Criteria	Level 4	Level 3	Level 2	Level 1
Knowledge/ Understanding	A thorough understanding of the possible solution and how it will help global warming.	An understanding of the possible solution and how it will help global warming.	A partial understanding of the possible solution and how it will help global warming.	A brief understanding of the possible solution and how it will help global warming.
Thinking	Explains solution well using specific examples.	Explains solution with some examples.	Explains solutions with one example.	Explains solution.
Communication	Communicates information clearly and well-organized. All sources are clearly cited.	Communicates information with some clarity and organization. Some sources are cited.	More information on this topic is needed.	Insufficient information.

AIR TRAVEL ASSIGNMENT



Your family has decided that they want to go on vacation. They are going to let you make the final decision if you are going to go somewhere in a plane or by another transportation method. You must research the advantages and disadvantages of each mode of transportation and make a final decision for your family.

LOCAL ISSUES RUBRIC

Student Name: _____

Criteria	4	3	2	1
Understanding of Topic	Student displayed thorough understanding of the current event.	Student displayed an understanding of the current event.	Student displayed minimal understanding of the current event.	Student displayed no understanding of the current event.

of guiding questions and graphic assessment. written and presentation form. the websites, videos or books

3	4
Researched with most details provided.	Thoroughly researched with all details provided.
A concise decision is provided in the written response.	A well thought out decision is presented in the written response.
Presentation explains their opinion of air travel.	Presentation is well-prepared and supported with visual materials.
Most sources provided.	All sources provided.

LOCAL ISSUES RUBRIC

Student Name: _____

Criteria	4	3	2	1
Understanding of Topic	Student displayed thorough understanding of the current event.	Student displayed an understanding of the current event.	Student displayed minimal understanding of the current event.	Student displayed no understanding of the current event.

Feedback: _____

ANSWER KEYS & RUBRICS

WHAT'S INSIDE?



Electricity Lessons

- ✓ Introduction: Safety Rules
- ✓ Introduction: Vocabulary
- ✓ Lesson 1: Current and Static Electricity
- ✓ Lesson 2A: Static Electricity
- ✓ Lesson 2B: Static Demonstration
- ✓ Lesson 3: Conductors and Insulators
- ✓ Lesson 4: Energy Conversions
- ✓ Lesson 5: Electrical Device Creation
- ✓ Lesson 6: Energy Transformations
- ✓ Lesson 7: Electrical Energy Transformation Device
- ✓ Lesson 8: Electrical Circuits
- ✓ Lesson 9: Series and Parallel Circuits
- ✓ Lesson 10: Creating Series and Parallel Circuits
- ✓ Lesson 11: Electricity Changes Over Time
- ✓ Lesson 12: Electricity Inquiry
- ✓ Lesson 13: Energy Conservation Project
- ✓ Lesson 14: Unit Test
- ✓ Lesson 15: Unit Review/Sub Plans
- ✓ Lesson 16: Electric Cars Article
- ✓ Lesson 17: Digital Escape Room

Biodiversity Lessons

- ✓ Introduction: Safety Rules & Unit Vocabulary
- ✓ Lesson 1A: Classifying Plants and Animals
- ✓ Lesson 1B: The Classification System
- ✓ Lesson 2: Biodiversity
- ✓ Lesson 3: Biodiversity Within Species
- ✓ Lesson 4: Biodiversity Within Ecosystems
- ✓ Lesson 5: Interrelationships
- ✓ Lesson 6: Everyday Products
- ✓ Lesson 7: Invasive Species
- ✓ Lesson 8: Comparing Organisms
- ✓ Lesson 9: Biodiversity and Climate Change
- ✓ Lesson 10: Biodiversity in Agriculture
- ✓ Lesson 11: Monoculture
- ✓ Lesson 12: Local Issues
- ✓ Lesson 13: Biodiversity Unit Test
- ✓ Lesson 14: Sub Plans
- ✓ Lesson 15: Dangerous North American Snakes Non-Fiction Article
- ✓ Lesson 16: Biodiversity Digital Escape Room

WHAT'S INSIDE?



Flight Lessons

- ✓ Introduction: Safety Rules & Unit Vocabulary
- ✓ Lesson 1A: The Properties of Air
- ✓ Lesson 1B: The Properties of Air Demonstration
- ✓ Lesson 2: Compression and Insulation of Air
- ✓ Lesson 3: Four Forces of Flight
- ✓ Lesson 4: Unbalanced Forces
- ✓ Lesson 5: How The Four Forces Can Be Altered
- ✓ Lesson 6: Characteristics And Adaptations That Enable Living Things To Fly
- ✓ Lesson 7: Paper Airplane Lab
- ✓ Lesson 8: Air Travel Inquiry
- ✓ Lesson 9: Flight Unit Test
- ✓ Lesson 10: Sub Plans
- ✓ Lesson 11: Drones Article Independent Work
- ✓ Lesson 12: Flight Digital Escape Room

Space Lessons

- ✓ Introduction: Safety Rules & Unit Vocabulary
- ✓ Lesson 1: Solar System Components
- ✓ Lesson 2: Light in Space
- ✓ Lesson 3: Humans in Space
- ✓ Lesson 4: Space Exploration Tools
- ✓ Lesson 5: The Earth, Moon, and Sun
- ✓ Lesson 6: Sun Dial Creation Lab
- ✓ Lesson 7: Canadian Contributions To Space
- ✓ Lesson 8: Space Exploration
- ✓ Lesson 9: Mission To Mars Inquiry
- ✓ Lesson 10: Space Unit Test
- ✓ Lesson 11: Sub Plans
- ✓ Lesson 12: Space Digital Escape Room

WHAT'S INSIDE?



Interactions in the Environment Lessons

- ✓ Unit Vocabulary QR Code Matching Activity
- ✓ Elements of Ecosystems
- ✓ Ecosystems – Examples and Interactions
- ✓ Energy Transfer and Food Chains
- ✓ Biotic Elements Quiz
- ✓ Matter Cycling
- ✓ Ecological Succession
- ✓ Ecosystem Limits
- ✓ Species At Risk & Invasive Species Assignment
- ✓ Human Interactions in the Environment
- ✓ Indigenous Perspectives
- ✓ Environmental Investigation Case Study: Electric Cars
- ✓ Environmental Protection Stations
- ✓ Ecosystem Summative Lab (3 options)
- ✓ Ecosystems Unit Test
- ✓ Sub Plans

Heat in the Environment Lessons

- ✓ Safety Lesson
- ✓ Unit Vocabulary QR Code Scavenger Hunt
- ✓ Introduction To Heat
- ✓ Heat Production
- ✓ Heat and Temperature
- ✓ The Particle Theory
- ✓ Heat and Volume
- ✓ Conduction, Convection, and Radiation
- ✓ Heat Video Questions
- ✓ Teacher Demonstration: Boiling Water in a Paper Cup
- ✓ Student Lab: Melting Ice Cubes
- ✓ Heating and Cooling of the Earth
- ✓ Greenhouse Gases
- ✓ Investigation: Benefits of Technology With Heat
- ✓ Stations & Project-Based Learning: Energy Types & Solar Panels Investigation
- ✓ Unit Test

WHAT'S INSIDE?



Pure Substances and Mixtures Lessons

- ✓ Safety Rules & Unit Vocabulary
- ✓ The Particle Theory
- ✓ Pure Substances and Mixtures
- ✓ Pure Substances and Mixtures Activity
- ✓ Homogeneous and Heterogeneous Mixtures
- ✓ Solutions and Solubility
- ✓ Solution Examples Activity
- ✓ Concentration of Solutions
- ✓ Saturated Solutions
- ✓ Saturation Lab
- ✓ Separating Mixtures
- ✓ Separating Mixtures Lab
- ✓ Positive and Negative Impacts on the Environment
- ✓ Tar Sands Investigation
- ✓ Unit Test
- ✓ Sub Plans

Understanding Structures and Mechanisms Lessons

- ✓ Safety Lesson, Unit Vocabulary, Unit Introduction
- ✓ Classifying Structures
- ✓ Structures Video Questions
- ✓ Centre of Gravity & Stability
- ✓ Force
- ✓ Show and Tell Assignment
- ✓ Classifying Structures Quiz
- ✓ Internal and External Forces
- ✓ Card Pyramid Activity
- ✓ Symmetry in Structures
- ✓ Structure Failure
- ✓ Manufacturing Factors
- ✓ Loads
- ✓ Structural Safety
- ✓ Design Factors
- ✓ Ergonomic Design
- ✓ Take-Out Container Lab
- ✓ Egg House Lab
- ✓ Unit Review
- ✓ Unit Test

FREE UP YOUR WEEKENDS

THIS RESOURCE IS FOR GRADE 6/7 SCIENCE TEACHERS WHO

- ✓ Want their students to enjoy what they are learning
- ✓ Want their evenings and weekends free from lesson planning
- ✓ Want to ensure that they are covering the curriculum expectations in a meaningful yet engaging way

Grade 6 Space Science Unit PDF & Digital Formats



Grade 6 Electricity Science Unit PDF & Digital Formats



Grade 7 Science Heat in the Environment PDF & Digital Formats



Grade 7 Science Understanding Structures PDF & Digital Formats



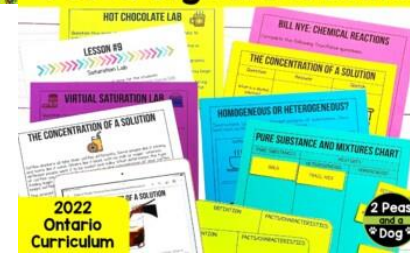
Grade 6 Flight Science Unit PDF & Digital Formats



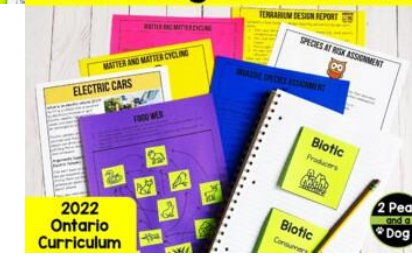
Grade 6 Biodiversity Science Unit PDF & Digital Formats



Grade 7 Science Pure Substances and Mixtures PDF & Digital Formats



Grade 7 Science Interactions in the Environment PDF & Digital Formats



LESSON FORMATS



PDF

✓ Individual & Whole Unit



DIGITAL

✓ Google Slides

RESOURCE CAN BE USED IN-PERSON OR ONLINE