Grade Level Cluster 3 – 5 Unit Overview	
Content Area: English as a Second Language	
Unit Title: Simple machines: What are they, what do they do and how can they make our lives easier?	**Program Design:** ESL pull-out or push-in, approximately 45-50 minutes in length.
Target Proficiency Level:	
Unit Summary: Students will use the language of physical science at the third through fifth grade levels to identify and describe several types of simple machines. Through a series of scaffolded activities and strategies that are aligned with students' levels of English language proficiency, the teacher facilitates language development in the areas of linguistic complexity, vocabulary usage, and language control. **Interdisciplinary Connections:** Language Arts Literacy, Science, Technology. **21st Century Themes**: Financial, Economic, Business and Entrepreneurial Literacy.	
Unit Rationale: This unit incorporates a variety of grade-level appropriate language activities integrated with the concept of simple machines. Through their participation in these activities, English language learners will be encouraged to develop their English language skills in the four language domains: listening, speaking, reading, and writing, in the content area of physical science. Additionally, the teacher will help students make connections among language, content, and daily life.	
Learning Targets	
WIDA Standards	**English Language Proficiency**
ELP Standard 1:	English language learners communicate for **Social** and **Instructional** purposes within the school setting.
ELP Standard 2:	English language learners communicate information, ideas, and concepts necessary for academic success in the content area of **Language Arts.**
ELP Standard 4:	English language learners communicate information, ideas, and concepts necessary for academic success in the content area of **Science.**
Language Domains:	Each standard encompasses four language domains that define how ELLs process and use language: listening, speaking, reading, writing
20101 Common Core Standard	**English Language Arts Writing**
Text types and purposes 5.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
2009 NJCCCS	**Science**
Physical Science 5.2.4.E.2	Identify the force that starts something moving or changes its speed or direction of motion.
2009 NJCCCS	**Technology**
8.1	All students will use digital tools to access, manage, evaluate and synthesize information in order to solve problems individually and

collaboratively and to create and communicate knowledge.

Related Cultural Content Statements

• Simple machines may differ across cultures.

Unit Essential Question	Unit Enduring Understandings
• What language do students need in order to demonstrate understanding, and engage in the topic simple machines?	• Listening, speaking, reading and writing about simple machines require specific academic language. • Simple machines affect our daily lives.

Evidence of Learning

Summative Assessment

You have designed a simple machine and you need to market it to the appropriate audience. Choose one of the following projects to persuade potential investor(s) to sponsor your product.

- Describe orally your simple machine and demonstrate its usefulness.
- Make a poster of your simple machine and present it orally to the class.
- Create and present orally a PowerPoint presentation about your simple machine
- Write and perform a skit/puppet show about your simple machine.
- Create and present a digital story about your simple machine.
- Illustrate with captions and orally present a comic strip about your simple machine

Equipment needed: Computers, with multi-media production tools such as Photo Story or PowerPoint and Internet, digital cameras, and art supplies

Teacher Resources: WIDA Speaking and Writing Rubrics, teacher-created rubric for project

Unit Learning Targets:

Students will create a persuasive presentation about their designed product of the simple machine orally and in writing through their chosen media.

- Identify orally simple machines with visual support.
- Compare and contrast orally and in writing the features of different simple machines using graphic organizers.
- Describe orally the functions of several simple machines.

Lesson Plans

Lessons Titles	Timeframe
Lesson 1 Simple Machines are Everywhere!	3-5 days
Lesson 2 Types of simple machines and their uses	5-7 days
Lesson 3 How to Lift a Zoo Animal	3-5 days
Lesson 4 How to create a persuasive "pitch"	5 days

Teacher Note: These lessons build upon previously learned vocabulary and grammatical structures. Teachers must reactivate the needed vocabulary and structures prior to teaching these lessons or must pre-teach these concepts. Students should be encouraged to look for cognates between English and their native language and they should also use a bilingual dictionary/

dictionary website, when needed.

Curriculum Development Resources
WIDA Standards www.wida.us
NJCCCS and Common Core Standards https://www13.state.nj.us/NJCCCS/
www.13.state.nj.us/NJCCCS/Technologytoolbox

Simple Machines Lesson Plan #1

Content Area: English as Second Language

Lesson Title: Simple Machines are Everywhere!	**Timeframe:** 3 – 5 days

Lesson Components

21st Century Themes

	Global Awareness	X	Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy:

21st Century Skills

X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication	X	Collaboration

Interdisciplinary Connections: Language Arts Literacy, Technology

Integration of Technology:

Equipment needed: Computer/projection setup, student computers, Internet

Goals/Objectives	Learning Activities/Instructional Strategies	Assessment Tasks

Students will:
 	
Speaking & Writing
• Identify orally and in writing the simple machines in the home.
• Create a virtual poster showing simple machines in the real world.
 	
Reading
• Match names with pictures of simple machines from written description.
 	
Speaking & Listening
• Describe and/or demonstrate what simple machines do.
 	
Speaking
	Key Vocabulary: Push/ pull, lift, move, turn, open, simple machine, change, hold.
	
	Key Language Structures:
	verb forms, declarative sentences
	    We use a _____ to _____.
	Describing actions.
	    We found a _____ in the _____.
	
	Warm-up:
	Teacher: Post several sheets of chart paper around the room for a "Gallery Walk".
	Students: Write/draw their responses on charts that have been labeled with different question/tasks, such as:
	a. What is work?
	b. Create a list of machines.
	c. Draw a machine you use daily.
	
	Lesson Sequence:
		Formative
		• Warm-up responses
		• Simple Machines Pre Test found at EdHeads)
		• Simple Machines Post Test
		• Graphic organizers
		• Glogster interactive poster
		• Voice Thread conversations
		• Homework

9/26/2011

• Explain how simple machines work.
 	
• Persuade others to invest in your product.
	1. Teacher: Introduces simple machines using the website EdHeads Simple Machines, goes to game link and demonstrates how it works, selects an object and asks students *"What does this simple machine do?"*
	
	2. Students: Work in pairs on the EdHeads website, exploring simple machines in different rooms of the home. They are encouraged to speak to each other, using sentence frames the teacher has posted, such as:
	   The _____ is in/on the _____ .
	   I see a _____ in the _____.
	
	3. Teacher: "Butterflies" from group to group, guiding students toward identifying simple machines, asking students to verbally name and describe them. As they "discover" simple machines on the site, student pairs can make a list of what they've found.
	They can then "report" at the end of the session:
	   We saw a _____ in the _____.
	
	4. Teacher: Elicits a discussion and list of **verbs** related to objects encountered on the website. Teacher can form her/his questions in order to elicit key vocabulary (see above): *push, lift, move, pull, turn, open, change, hold.* Students can also be invited to "act out" these verbs, after teacher models a related action (TPR).
	
	5. Students: Complete a Graphic Organizer, where they match names and pictures of simple machines in the home, as well as supply (by drawing/magazine picture/or web image) a picture of a real-world example.
	
	6. Teacher: Introduces Glogster Edu (which teacher has set up with student usernames) and models how to create a virtual poster.
	
	7. Students: Discuss procedures, expectations, and standards of behavior and online safety (prior to using Glogster).
	
	8. Students: Create virtual posters (individually and/or in pairs, according to computer skills). Virtual posters will highlight a specific simple machine. Students will work together,	

9/26/2011

| | discuss and plan their poster, assist each other in maneuvering site tools, and write on their poster (using the site's gadgets).
9. Students: Write sentences using the verbs and vocabulary generated in the previous lessons.
10. Students: Collaborate on a [VoiceThread](). Teacher posts a picture of a person doing work, or using a simple machine. Students leave comments describing the picture, explaining how the machine works, etc.

Closure:
Students: Create an "Important Book" about simple machines. (Teacher's Note: Teacher uses this book at beginning of year and follows pattern as a closing activity about new topics throughout the year.)

Expansion/Extension/Homework:
Students: Answer the following questions in a science journal:
• What simple machines do you use in your home?
• What simple machines are used in school?
• What do simple machines do? | |

Differentiation:
Use flexible grouping; deliberately pair students homogeneously or heterogeneously by proficiency level depending on the objective. Simple machines literature will be available on a variety of reading levels to accommodate ELP Levels.

During Activity #4, use [Total Physical Response]() .

For Activity #9, teacher can help student write their comment and allow them to read it for VoiceThread.

Resources:
- Edheads: http://www.edheads.org/activities/simple-machines/
- Power Point presentations: http://science.pppst.com/simplemachines.html
- *The Important Book* by Margaret Wise Brown
- [Glogster EDU website]()
- [VoiceThread]()

Simple Machines Lesson Plan #2						
Content Area: English as a Second Language						
Lesson Title: Types of simple machines and their uses				**Timeframe:** 7-10 days		
Lesson Components						
21st Century Themes						
	Global Awareness	X	Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills						
X	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication	X	Collaboration
Interdisciplinary Connections: Language Arts						
Integration of Technology: Internet use, Power Point presentation						
Equipment needed: Computers, Internet						

Goals/Objectives	Learning Activities/Instructional Strategies	Assessment Tasks
Students will: *Speaking* • Explain the 6 types of simple machines. *Listening & Writing* • Define and illustrate each simple machine after listening to group presentation. *Writing* • Write a minimum of two paragraphs (5-6 sentences each) comparing and contrasting two simple machines of the student's choice. • Write a caption about school-based simple machine.	**Key Vocabulary:** Lever, inclined plane, screws, wedge, pulley, wheel, and axle. **Key Language Structure:** Conjunctions, comparative adjectives, adverbs. **Warm-up:** Teacher: Shows images or examples of the several simple machines. Students: Respond on white board how and where they have seen the simple machines used in real life. Teacher: Leads discussion on students' responses, clarifying misconceptions. **Lesson Sequence:** 1. Teacher: Divide students into several groups and assign one type of simple machine to each group. 2. Students: Refer to teacher-selected websites to research their simple machine.	**Formative** • Whiteboard entries • Think-pair-share: describe simple machines, in pairs, to show that they understand their unique uses. • Student created book • Complete graphic organizer • Write a compare and contrast essay on two simple

9/26/2011

	Individually (with group support), students complete graphic organizer describing the simple machine and its function, and provide examples. Think-pair-share. 3. Students: Each group presents their simple machine to the class. At the end of each group's presentation, whole class summarizes the purpose of each simple machine. 4. Students: Use the "Speaking Rubric of the WIDA Consortium" to provide feedback on peers' presentations. 5. Students: Individually create a simple machines book. After each summary, students will use one to two pages for each simple machine. The book will include all of the simple machines researched. The following details for each simple machine should be included: 1) the name of the simple machine 2) a student-drawn illustration 3) a text book definition 4) a student-created definition. 6. Students: Use this book to complete a graphic organizer, comparing and contrasting two simple machines at a time, using appropriate language structures. 7. Students: Refer back to this graphic organizer when drafting their compare and contrast essay. Students should self-select two simple machines to compare and contrast. 8. Students: Read essays aloud, in pairs, and then to whole class. Classmates provide feedback on peers' essays using student-friendly version of the "Writing Rubric of the WIDA Consortium, Grades 1-12." Teacher uses this rubric to provide feedback. 9. Students: Use a digital camera to explore school grounds, locating and taking pictures of the several simple machines. 10. Teacher: Uploads photos and create a Power Point presentation.	machines of their choice • Present their machine to the whole class the purpose of their simple machine. Classmates use teacher-created rubric to provide feedback for one another. • Writing in daily journals **Summative** Interactive quiz

11. Students: Create captions for each slide.

Closure:

Students: Access the following website:
http://www.edheads.org/activities/simple-machines/index.htm and take the interactive quizzes on simple machines

Expansion/Extension/Homework:

Students: Answer the question in daily journal: Which simple machine is most useful and explain why?

Differentiation:

Use flexible grouping; deliberately pair students homogeneously or heterogeneously by proficiency level depending on the objective.

ELP 1and 2 - Write captions comparing two simple machines using a sentence frame.

ELP 3 to 5 – Write two paragraphs comparing and contrasting two machines.

Suggested Resources:

- An example or image of each of the following simple machines: lever, inclined plane, screw, wedge, pulley, wheel, and axle
- Construction paper
- Colored pencils
- Computer with internet access

9/26/2011

Simple Machines Lesson Plan #3						
Content Area: ESL						
Lesson Title: How to Lift a Zoo Animal					**Timeframe:** 3 - 5 days	
Lesson Components						
21st Century Themes						
	Global Awareness	X	Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills						
	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication	X	Collaboration
Interdisciplinary Connections: Language Arts, Science						
Integration of Technology: Power Point presentations; interactive websites						
Equipment needed: Computer/projection setup/Smartboard, student computers, Internet						

Goals/Objectives	Learning Activities/Instructional Strategies	Assessment Tasks
Students will: *Speaking & Writing* • Respond to a speculative writing prompt about lifting a zoo animal using cause and effect and sequential transitional phrases. Upon completion, share their writing orally. *Reading* • Identify similarities among simple machines.	**Key Vocabulary:** Gear, exert, force, raise, weight, distance. **Key Language Structures**: Cause/effect transitional phrases, modals. **Warm-up:** Students: Review the simple machines that they have learned about and briefly explain their functions. **Lesson Sequence:** 1. Teacher: Connect to prior knowledge about simple machines 2. Students: Complete a "machine" picture sort activity and justify the categories chosen (e.g. home/school; gear/pulley; size; weight). 3. Teacher: Introduces and models a cause-effect graphic organizer and	**Formative** • Machine picture sort • Speaking rubric; writing rubric • Completion of cause-effect graphic organizers, i.e., fishbone graphic organizer • Individual writing conferences • Anecdotal records • Informal observations

9/26/2011

	the key language targets necessary to write a cause and effect essay using known or previously learned vocabulary (e.g. If it rains, then I wear my raincoat; As a result of the rain, I put on my raincoat.) 4. Students: Practice using the language structures with known concepts. 5. Students: Respond to the speculative writing prompt about simple machines. Prompt: *Imagine you are working at the zoo when a new, large animal arrives. You must figure out how to lift this animal to get it into its cage. Think about the simple machines you have studied. Draw a picture to show how you will do it! Then, write a step by step explanation of how you use one or more simple machines to lift your zoo animal.* 6. Students: Practice with teacher guidance, then in pairs and finally, individually, following the guidelines of the Writer's Workshop Model. http://writersworkshophelp.blogspot.com/2007/11/structure -of-mini-lesson.html. **Closure:** Students: Share their writings in groups.	

Differentiation:

Use flexible grouping; deliberately pair students homogeneously or heterogeneously by proficiency level depending on the objective. Weather literature will be available on a variety of reading levels to accommodate ELP Levels

- Lower proficiency students can dictate their responses.
- Lower proficiency students can write with bullets in words and phrases.
- Cloze activities with ELP 2 students
- Sentence frames with ELP 2-3 students
- Word banks for ELP 2-3 students

Suggested Resources:

- http://www2.scholastic.com/browse/lessonplan.jsp?id=384
- www.proteacher.org
- www.science.pppst.com/simplemachines.html
- http://www.appliancepartspros.com/simple-machines-for-kids.aspx
- www.languagearts.pppst.com/cause-effect.html
- http://www.educationoasis.com/curriculum/GO/cause_effect.htm
- **Paper**
- **Pencils**
- **Colored Pencils**
- **Writer's Notebooks**

Simple Machines	Lesson Plan #4

Content Area: ESL

Lesson Title: How to create a persuasive "pitch"	**Timeframe:** 5 days

Lesson Components

21st Century Themes						
	Global Awareness	X	Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy

21st Century Skills							
X	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication	X	Collaboration

Interdisciplinary Connections: Language Arts, Science

Integration of Technology: Power Point presentations; interactive websites

Equipment needed: Computer/projection setup/Smartboard, student computers, Internet

Goals/Objectives	Learning Activities/Instructional Strategies	Assessment Tasks
Students will: *Speaking & Writing* • Orally and in writing convince "Sharks" to invest in their simple machine. *Listening* • Evaluate their peer's presentations using a rubric.	**Key Vocabulary:** All previously learned unit vocabulary **Key Language Structures**: Persuasive language structures and techniques. **Warm-up:** Teacher: Shows clips of TV show, *Shark Tank*. Students: Discuss how participants presented their products. Teacher: Identify persuasive techniques, key phrases and vocabulary. **Lesson Sequence:** 1. Teacher: Develop word bank and sentence frames. 2. Students: Use a persuasive map to create their argument using the claim technique (website). 3. Students: Using their invented machine,	**Formative** • Persuasive map • Individual writing conferences • Anecdotal records • Informal observations **Summative** • Speaking rubric • Writing rubric

9/26/2011

	write a first draft to convince the "sharks" to invest in their product. 4. Students: In pairs, use a rubric to check for persuasive elements. 5. Students: Practice with teacher guidance, then in pairs and finally, individually, following the guidelines of the Writer's Workshop Model. 6: Students: Practice oral presentation **Closure:** Students will rehearse their writings and presentations in small groups.	

Differentiation:

Use flexible grouping; deliberately pair students homogeneously or heterogeneously by proficiency level depending on the objective. Writing samples at each proficiency level will be available on a variety of levels to accommodate ELP Levels.

- Lower proficiency students can write with bullets in words and phrases and/or using sentence frames and word banks.
- Lower proficiency students could present with a partner.

Suggested Resources:

- www.abc.go.com/shows/shark-tank
- www.readwritethink.org/files/resources/interactives/persuasion_map/
- http://writersworkshophelp.blogspot.com/2007/11/structure -of-mini-lesson.html.
- **Paper and Pencils**
- **Writer's Notebooks**