

# Integrated Learning Segment

Two-Week Thematic Unit for Second grade

By: Tuesday Dowell and ECED 4450 Spring 2018 class

**Focal Science Standard(s): 2.PS2.1. Analyze the push or the pull that occurs when objects collide or are connected.**

**Theme/Topic: Push and Pull**



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## Introduction and Rationale (a)

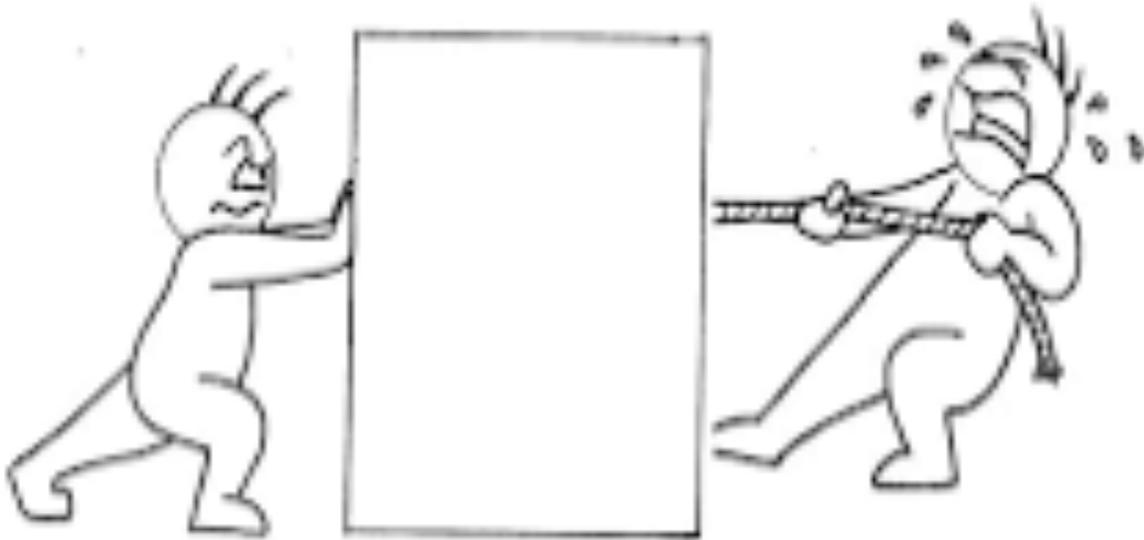
This unit plan is on push and pull, specifically what push and pull looks like after objects have collided or connected. The activities and lessons within this unit are designed to help children understand that push and pull can be forced on objects and also be the outcome of action. This concept is something that we interact with every day, there for it is important for students to develop a conceptual understanding of the different aspects of this standard. Students need to understand cause and effect factors that coincide with this concept; cause and effect is another important concept not only in science but across content areas. We focus on this concept in almost all other subjects, because it can be seen in many different aspects of life.

Within each activity one can see the 5 E's; which are Engage, Explore, Explain, Elaborate, and Evaluate. The teacher will be engaging students by giving a variety of activities ranging from reading different text, working with hands on activities, making new objects and integrating their interest into the activities. Students are able to explore different ideas through center time activities as well as the main activities throughout the week; students will also be engaged in conversations that will enhance their interest and spark inquiry which will then push them to explore more ideas. The teacher will be interacting with students to hear their thoughts; the teacher will ask questions to advance students' thinking and encourage them to elaborate on their thoughts. As students are required to do projects and other assignments, the teacher will ask students to explain their thought process and ideas behind what they did; the teacher is looking for real understanding of the topic and by doing this s/he can see where students are in their conceptual development. The teacher and students are working together to engage in meaningful conversations each day to interpret what students are learning and create opportunities to work

with concepts. Students are able to think about what they did and evaluate what they could do to improve their project or problem.

I have used many different types of materials through out the plan and a variety of different types of scenarios. The students that I have created this lesson for showed interest in not only everyday activities that we do involving push and pull effects but more abstract concepts like the wind. The lesson begins with very concrete materials that can be manipulated and integrates literature that will support conceptual understand of push and pull.

# Push and Pull



## Standard/s Addressed, Goals, and Objectives for the Unit (b)

### **Standards addressed.**

Focus science standard: 2.PS2.1. Analyze the push or the pull that occurs when objects collide or are connected.

When talking about the book *Newton and Me* and looking deeper into what push and pull are it will be linking with standard 2.RL.KID.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. 2.RL.KID.3 Describe how characters in a story respond to major events and challenges. 2.RI.CS.6, 2.SL.PKI.6, 2.SL.CC.2 , & 2.SL.CC.3 are used through out the unite when reading the different text and when having class discussions. Art.GLE.1.1 Use tools and media consistently in a safe and responsible manner, and Art.GLE.1.3 Explore a variety of processes are implemented when students make their magnet art. Movement 1.8 and drama 1.3 are the standards used when the students are making a skit and a dance to help them remember and represent push and pull. The students are using the math standard 2.MD.D.10 to take data and represent it in a chart and 2.MD.A.3 to estimate the length of specific objects or distances. Students will be look at tornados the last day; in this day they will be exposed to activities and experiments that link to 2.ETS.1.2, Social Studies 2.18 and a few of the literacy standards already mentioned.

**Goals.** The goal of this unit is for children to learn what push and pull are. They will be thinking about and making personal understandings about how things more and why things more. Students will be learning important new vocabulary that will help them later in science. By the end of the unit students should be able to use their own words while integrating the new vocabulary to describe push and pull and why is occurs in everyday activities and in natural settings.

## Objectives

TLW listen to the teacher read *Newton and Me* then discuss with the class the purpose of the text with 90% accuracy.

TLW collaborate with partners to discuss information from the text and create a Venn Diagram separating the actions in the book into pull pull or both categories with 85% accuracy.

TLW work with a small group to construct a tornado in a box by manipulating materials in a way that will create a funnel of powdered sugar; students will 80% accuracy.

TLW explore magnetic materials while creating a painting with 90% accuracy.

TLW contribute to the class discussion and respect other students when they contribute their ideas with 90% accuracy.

TLW explore centers and interact with a variety of natural materials with 90% accuracy.

TLW collaborate with partners to manipulate materials to create a device that can be pushed by the wind with 85% accuracy.



Math:  
2.MD.A.3 Estimate and collect lengths of distances that objects go when they collide with other object.  
2.MD.D.10 Make a bar graph to represent the data collected.

Music/Movement:  
1.8 Students design a dance to music the teacher provides to help them remember push and pull.

Drama:  
1.3 Students get in small groups and develop a drama showing a real life scene that shows push or pull

Art:  
3.1 Model the out come of a chosen push or pull experiment with a drawing.  
1.1 1.3 Use magnetic materials to make paintings.  
Magnet painting

**Movement  
Push and  
Pull  
2.PS2.1**

Social Studies 2.18 The students will be discussing tornados and why they are more likely to occur some areas and not others.

Literature: 2.SL.PKI.6 2.SL.CC.2  
2.SL.CC.3 *The Most Magnificent Thing, The Wind Blew, Like a Windy Day, Give It a Push! Give It a Pull!*, 2.RI.CS.6 *Newton and Me, Magnet Max, Motion, Forces of Nature (the weather channel)*

Science:  
2.PS2.1 Marble collation experiment  
Magnets center play

Engineering:  
2.ETS.1.2 tornado in a box.  
Transportation Machine that can be pushed by the wind

## Title and Description of Learning Experiences (d)

### Overview

Students will be looking at several pieces of literature and the different ideas each text presents about motion and the concept of push and pull. Students will be analyzing the push and pull that occurs after an action is done, while also learning it take some kind of force to cause a reaction. These lessons will integrate different subject areas and different opportunities for learning they offer. Students will become engaged in the topic because they will have a chance to give the teacher feedback on what they find interesting for this topic. The teacher will modify future lessons to integrate students' ideas on how this topic can be taught. Students will be doing whole group, individual, and small group activities, so they have a chance to learn in multiple settings. The teacher begins with a look at what push and pull are and how they relate to students' lives. Students will look at everyday activities, then look at complex situations of push and pull like using magnets. When this lesson was developed students showed interest in wind and tornados and how they make objects more. The teacher has modified the lesson to integrate natural forces that cause objects to push or pull.



## Calendar

Week 1 of 2

Schedule	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Welcome/Whole Group</b>	In Morning Meeting: Read the book <i>Newton and me.</i>	Entrances ticket asking students to describe one thing they are interested in learning about push and pull.	Morning meeting: talk about what students observed at home.	Making a dance that helps us remember the difference between push and pull	Morning meeting: the teacher talks about magnets the class makes a KWL chart about magnets
<b>Stations work</b>	Math stations	Math station	Use marbles to analyze the distance and chart the different ways the marbles react when they collide.	Math stations	Math stations and science that incorporate magnet play
<b>Literacy/English</b>	Looking back at <i>Newton and Me</i> to discuss the who what when where, & why. Tree map.	Read <i>Give It a Push! Give It a Pull!</i> : A Look at Forces then ask the students to recall information from the text then look at the Venn Diagram the students made and compare what they wrote on them with what they talked about in this text and <i>Newton and Me.</i>	Read the book <i>Motion.</i> Write a story using some of our new vocabulary. Students will write a short story that has them putting a focus on something that pulls it toward them or pushes it away.		The class will read <i>Magnet Max</i> then they will write a letter to a friend describing the wonderful thing they discover about magnets.
<b>Lunch</b>	Lunch	Lunch	Lunch	Lunch	
<b>Free Play/Center Time</b>	Activities like magnet play and jobs that require pushing and pulling will be placed in centers	Books will be put in that explicitly mention push and pull		In a center students will have the opportunity to create a model that depicts a experiment where objects will have a push or pull effect on them.	

<b>Outdoor Learning/Gross Motor</b>		Tug of War	Play out door bowling; look at the different reactions when the ball is thrown different ways and at different speeds. Is this experiment different then the one with the marbles?		
<b>Snack</b>	String cheese, squire orange juice or lemonade	GoGurt	Oreos and milk	Banana	
<b>Small Group</b>	Students will work in small groups to make a Venn Diagram showing push, pull, and both.			Begin making a drama that shows how a collision of some short will effect different objects.	Students will work with one-two other people and play with magnets with many different objects and use a connects or repels sheet to collect their data.
<b>Related art/Outside Departure</b>	Exit ticket explaining the difference between push and pull	Challenge students to go home and look at what happens when items collide or connect with each other.	Class Meeting reviewing the day: turn to knee partners to discuss one think they learned today.		Magnet Painting

Week 2 of 2

Schedule	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Welcome/Whole Group</b>	Recap in morning meeting what we were talking about last week? I asked everyone to submit things they wanted to know about push and pull. Lots of questions about natural forces. What is a natural force? Circle map of natural forces.		The teacher will read <i>The Most Magnificent Thing</i> . Why do you think I read this? We are going to engineer something that will move with the wind and hold a Lego person.	Morning meeting then. Students will discuss their diagrams they made from in art with their small groups. They will make decisions on the final design of their transportation device.	In morning meeting the teacher will bring back the book <i>The Most Magnificent Thing</i> . We are going to use our engineering skills to make an an indoor tornado. First show a real one <a href="https://www.youtube.com/watch?v=bzMIaWq_a">https://www.youtube.com/watch?v=bzMIaWq_a</a>

					<p>VcShow the clip making an indoor tornado- youtube- <a href="https://www.youtube.com/watch?v=oM1FVAYE2pg">https://www.youtube.com/watch?v=oM1FVAYE2pg</a></p> <p>Talk about how tornados relate to our push and pull unit. How are tornados formed?</p>
<b>Stations Work</b>	Math and literacy	Math and Literacy	<p>Students will work on previous stations like the marble roll to look at how objects move and what objects have a higher frequency to be pushed farther by wind. Students will also be reading books like <i>Wind</i> by Carol Thompson</p>	<p>Math and Literacy stations that involve wind. Like reading <i>The Wind Blew</i> and <i>Like a Windy Day</i>. And Math stations that require measurement activities.</p>	<p>Students will have different stations related to tornados. Making a tornado flip book of safety tips, vocabulary and how tornados are formed. Making tornado sensory bottles. Books about tornados and how they form.</p>
<b>Literacy/ English</b>	<p>Read <i>Forces of Nature (the weather channel)</i>. Make a bubble map showing all the different natural forces they talked about and where the nature forces are usually found.</p>				<p>Read the book <i>Why Does It Happen? Tornados Hurricanes and Typhoons</i>. The class will talk about the new vocabulary and what the book told us about tornados. How can we compare this to what we already know about tornados? How does this relate to other things we've already talked about? Why do tornados occur more often in some areas and not in others? * The teacher</p>

					will only read the tornado section then leave it in the classroom library so students may go look at it later if they are interested.
<b>Lunch</b>	Lunch	Lunch	Lunch	Lunch	Lunch
<b>Free Play/Center Time</b>	Sensory stations where students can experiment with some natural materials and analyze the different push and pulls that occur.	Water table with multiple types of water forces. Students can explore Weather wiz kids to look at water and things the water can do <a href="http://www.weatherwizkids.com/weather-tornado.htm">http://www.weatherwizkids.com/weather-tornado.htm</a>	Students can explore Weather wiz kids to look at wind and things the wind can do <a href="http://www.weatherwizkids.com/weather-tornado.htm">http://www.weatherwizkids.com/weather-tornado.htm</a>	During this time, students begin construction on their transportation device with their group. The teacher will remind the students they will have 15 minutes during small group to finish construction and test their machine	The teacher will provide materials to make tornados in a jar with directions in the sciences center. Students can use directions unless they would like to try and experiment to find out how to do it on their own.
<b>Outdoor Learning/Gross Motor</b>			Students can experiment with different materials set out for them to see what the wind can carry.		
<b>Snack</b>	Push Pops			Zip lock butterfly snack packs	Bugles
<b>Small Group</b>	Make boats that can be pulled down a stream.	Work with a pan full of soil give students different types of materials to add and experiment what water does to certain materials. Discuss what happened to the different groups soils and the different	Students will make plans, and construct a structure that will carry a Lego person through the wind.	Students finally present their transportation machine that will be pushed when it collides with wind. The groups will present their work then measure how far it went. They will make their distances on a class graph. Then after all	The teacher will show the students the youtube video from earlier that morning and provide the materials need to make a tornado in a box the students will work on how to figure out how to make it. (The class will not be using dry ice they

				groups have gone the class will reflect on what worked well and what could be improved in each groups products.	will be using powdered sugar.) Final test for experiments
<b>Related Arts/ Departure</b>		The teacher will ask students while in line waiting to be called to leave one thing they learned today	Students will design their structure in art using graphing paper and tools to measure the appropriate length.		The art teacher will help in the tornado box project.

\* *Complete lesson plan*

## **Titles and Descriptions**

### **Week**

#### **Day 1:**

The teacher will start the day off in morning meeting; in the class meeting the teacher will ask students what they know about push and what they know about pull. What happens when objects hit each other? Can objects connect? What happens then? The teacher will then introduce the text *Newton and Me*. The teacher will ask students what they think the book could be about. After students answer, the teacher will begin reading. While reading the teacher engages students in conversation about the different events of the book. After the read aloud is over, the teacher will ask students, "What was this book actually about?"

Students will move into regularly scheduled station work. After station time is over, students will work as a whole group to make a tree map to organize their thoughts about the text *Newton and Me*. There will be a who was in the story, what did they do, and how did they do it branches. The class will talk about why the boy did the actions a certain way. Did he ever change the way he did something? At this point, students should have a good idea of push and pull and when forces are put on something they will have a reaction.

After this discussion, the class will continue with their daily schedule. The next quick embedded strategy the teacher will use is during snack. The class will be making their own orange juice/lemonade and eating cheese sticks. The teacher will show students that when she squeezes and puts force on the fruit the juice is pushed out. When snack is over students will then work in small groups to make Venn Diagrams showing push, pull, and both. Students will come up with at least 4 actions for push, 4 actions for pull and 2 actions that demonstrate both push and pull. Students can experiment with action to determine if the actions are indeed a push, pull or both. When the class has finished this activity, students will share their Venn Diagrams with the class and discuss different actions that were identified.

The class will then go to related arts. When the class returns from related arts, they will complete an exit ticket before they can pack up and line up to go home. Students will be asked to write in their own words the difference between push and a pull.

**Day 2:**

When students begin coming into the classroom in the morning, they will have an entrance ticket on the board. The teacher will be reminding students to do their ticket and stick it in the collections box. The question will be to write down one thing they are interested in learning about push and pull; why or what push and pull occur after things collide or connect? After students do this they will go to the rug for morning meeting.

The class will continue their daily routine. During literacy and English, they will read *Give It a Push! Give It a Pull!: A Look at Forces*. The teacher will ask students to recall information from the text; students will be prompted to revisit the student made Venn Diagrams from the previous day. The class will talk about some of the vocabulary they used in the text and how that new vocabulary relates to the actions we know cause a push or pull.

When it is time for centers, the teacher will place different books in the library center and place other texts that relate to the other centers and push and pull in the other centers.

Before the students go outside, the teacher will propose they do an experiment, tug of war. Student will work together to pull a rope and try and pull it harder and faster than the other team. The teacher will pose different questions throughout the experiment like what is the push or pull after forces are put on the rope.

The students will finish out their day and while lining up and getting ready to leave the teacher will give them a challenge. Go home and observe you and your family's actions, are there a lot of things that have a push or pull effect? Think about it and talk about it with your family, then when we come back tomorrow we are going to share out and talk about it with the class.

**Day 3:** Students were asked to go home the previous day and observe different things they do and their family does that causes a push or pull. When the students are in morning meeting they will discuss the different observations each student had.

After morning meeting the students will work in different math stations. In one station students will use marbles to analyze the distance marbles go when pushed or pulled and chart the ways marbles reacted and distances marbles went. Students will chart their findings on an ongoing chart that is for the entire class.

After station work, students will listen and help the teacher read the book *Motion*. Once students have had a full discussion about the book and new vocabulary, students will write a story using some of their new vocabulary. Students will write a short story that describes them putting force on an object that pulls it toward them or pushes it away. They will have to have the basic components of what a story looks and sounds like; such as having a beginning, middle, end and have proper sentence structure. This will help the teacher know if students have a good understanding of the connections push and pull have to everyday actions as well as working on their writing and understanding of print.

The next activity that is related to push and pull will occur during free play and playing outside. Students will play outdoor bowling. The teacher will model thinking aloud about the different reactions when the ball is thrown different ways and at different speeds. S/he will also ask, "How this experiment is different than the one with the small marbles?"

At the end of the day, the class will turn to their knee partners and each partner will say one thing they learned today. Some students will be called on to share with the rest of the class.

**Day 4:** Students will begin the day with the morning meeting and talk about some of the ways, we can remember push & pull. The class will brainstorm different ways that push and pull can occur and be represented like making a song and dance. The teacher finds a musical beat that the students like, then asks students to break into small groups to make lyrics and moves to help them remember what causes push or pull to occur. Students will create a musical number that reminds them of push and pull; then present it to the rest of the class. Students will discuss the different strategies they used with the class and how it represents the concept. The class will discuss some of the components from each dance that they liked. When the class needs a brain break or a reminder of what happens they can use their songs. Students will go to center time and work with different activities that have been placed there. During small group time students will work on a small drama that shows a collision or connection that produces a push or pull. Students will have time to write a script to decide what will be said and time to practice the skit. Students will act out their skit in front of the rest of the class; the class will discuss the different components from beginning to end and how they felt it related to push

and pull. While each group performs, the teacher will watch to see how students interpreted the information and listen to the discussion to see how the audience felt it was represented.

**Day 5:** Students will gather at morning meeting. At the conclusion of morning meeting, the teacher will introduce the idea of magnets in the context of push and pull. The class will make a KWL chart about magnets. In station work, learners will complete math activities as well as magnet exploration. Students will play with magnets and record their noticings on a piece of paper. There will be questions on a sheet of paper introducing the activity, student may or may not read this but it allows the teacher to see which students are not as engaged. S/he can ask them their noticing's and direct them to the questions.

Once station work is over, the class will read *Magnet Max* then they will write a letter to a friend describing the wonderful things they know about magnets and how magnets are used. Students do not have to follow these exact prompts, because the goal of the lesson is to let student describe and explain magnets and magnetic properties that relate to push and pull in their own words.

Students will have the opportunity to draw models of an experiment that shows their understanding of an object being pushed or pulled as the effect. Students will work with one-two other people and play with magnets and many different objects. They will be analyzing the different connects or repels, they will use data collection sheet to record their results.

Students will then go to Art class and make a magnet painting. Students will have various metal materials that they will put into paint. Their paper will be in a plastic pan they will put metal objects on the paper then put a magnet under the pan and move it around. As it moves it pulls the metal objects with it making different lines and shapes on the paper.

## **Week 2**

**Day 6** The teacher will begin this day with a recap in morning meeting on what the class learned about during the previous week? The teacher will ask them to turn to a knee partner and discuss what they remember about push and pull; the teacher will call on different students to share what their partner said. The teacher will then

tell students that she asked everyone to submit things they wanted to know about push and pull and there were a lots of questions about natural forces. What are natural forces? The class will brain storm to create a circle map of natural forces based on their current personal knowledge. After making completing the circle map, the teacher will ask students to keep this in mind as they go throughout the day and to be thinking about what they might add to the chart.

After the class has completed work stations for the day, the class will gather at the rug for literacy/English. The teacher will introduce the text *Forces of Nature (The weather channel)*. She will ask students how they believe this book will relate to the topic of push and pull. The teacher will wait for all students to answer that would like to. Then will tell students, “As I read this book, I want you all to think about how each topic relates to push and pull as an effect on something.” As the teacher reads, she will model by thinking aloud so students can see her thought process and begin to ask those important questions that lead to inquiry. When the teacher has finished reading the book, s/he will ask students, if they think that they can add anything to the circle map they made before reading the book. After adding on to the circle map, she will ask the students where we might find some of these natural forces and what may they look like in these different areas. The class will discuss these important components to the topic.

Once the class has gone to lunch and back, students will have a chance to be engaged in self discovery centers. Students will have books within centers on push and pull, forces, cause and effect, and natural forces. Students will also have the option to work at the water table which has different environment simulations and other materials students can experiment with to look for push and pull.

Students will then have snack then break into small groups. Students will construct boats that float and can be pushed by a stream or creek. Students are doing this to see that water flows and has a force that can move objects. The water pulls the object on its surface with it students need to see there are other types pulls that we may not always think about. Students will go to art and represent their experience with the boats in paintings or collages.

**Day 7** The students will do their regular class routine; then during center time the water table will be available to work in as well as a new iPad resource to explore weather and how rain and other forms of water can effect

objects. The goal here is to get to a point where students begin to look at erosion and how that relates to push and pull. Students will explore a mini environment with soil, rocks and other materials that students can add to the setting. Students will apply water at different points to see how the water pulls materials and make observations about whether the materials are being pulled down stream or just pulled down an incline. The teacher can have different types of landforms represented in the pans for different groups. Students can begin by applying water to the environment or change up the materials to try and make it more of a sturdy land form. The teacher will be looking for student engagement and asking questions to help students dive deeper into the concepts represented in the experiment. The teacher will ask students at the end of the day to explain one new thing they learned about water and its relationship to push and pull.

**Day 8** The teacher will be starting this day off by bringing out the text *The Most Magnificent Thing*. The teacher will read the book and ask learners what they believe the author was trying to tell us. S/he will engage students by prompting them to explain why s/he chose this particular story to share with the class. Students will be allowed to think and prompted to give a few guesses. The teacher will explain that during today's lesson students will be making transportation devices that are moved by the wind to transport a Lego person. Students will work in math stations that relate to distance and measurement and in literacy stations that involve reading short stories or passages about wind. Students will then take center time to come together with their small groups to look at the materials they can use to make the machines. Students will discuss their thoughts and begin making models and testing. Students will go to art class at the end of the day and draw a model and plans with dimensions of their machine as individuals.

**Day 9** When students come back this morning, the class will talk about the boats they stated making the day before. The teacher collected all the models from the art teacher and gives them back to students. Students will get back in their groups and talk about the different visions each person had for their device. Students will have to come together to work out something that has all the important details each member thinks should be on a device created by their group. This is a great opportunity to see students use social skill, self control, and self regulation. Students will do their math and literacy work stations that relate to measurement and books like *The*

*Wind Blew* and *Like a Windy Day*. During small group time the students will make tests models and revamp their final construction of their transportation devices. Students will then do a final test on their device and measure the distance it travels. Each group will make a mark on the bar graph showing how far their machine traveled. Students will then reflect on what they think they could have done better and changed on their transportation device. The teacher will ask questions such as: Do you think you used the wind to your advantage? How did it blow your devices? Was that a push or a pull action?

**Day 10** The teacher will bring the book *The Most Magnificent Thing* back out during morning meeting. She will talk about what this book told us last time we read it? How did it help us perseverer in solving our problems? The teacher will read back over the book and ask students to predict what activity the class will be doing maybe today, based on the rereading of the text. Students should say something like an engineering project, building a machine, etc. The teacher explains to students that they are going to be making an indoor tornado. S/he will ask “What do you think tornados have to do with push and pull?” The class will discuss this question; the teacher will follow up by showing students examples of an outdoor tornado and an indoor tornado. After the discussion, students will go to work stations where they will have the opportunity to make a tornado flip book, read different books on tornados, make tornados in a jar, and experiment with what wind can blow. Read the book *Why Does It Happen? Tornados Hurricanes and Typhoons*. The class will talk about the new vocabulary and what the book tells about tornados. How can we relate this to our push and pull topic? How does a tornado cause a push or a pull? The class will discuss these questions. The class will go to lunch and recess and return to the classroom to begin their big projects. The teacher will show students two short videos about tornados. Then provide materials and ask students how they might make a tornado with these materials. Students will then begin to discuss and talk about how they will use their materials and how a tornado is pulled into formation. The teacher will walk around and observe students, engaging them in questions that may get some ideas going about how they could make a tornado. The teacher will be taking anecdotal notes on what students say, noting specifically conversation that communicates that demonstrate students’ understanding that forces need to be put upon a object that create different types of push or pull and how these push or pulls effect other things.

Students will finish the activity then do a final test for the class to see. Students will describe what they did and why; explaining how they thought about push and pull in this scenario and engineering. Once everyone has tested their tornados, the class will do a final recap on what went right, what went wrong, and what they thought they could have done better. Additionally they will be asked to make noticings about what other groups did differently.

## Two Complete Lesson Plans (e)

### Complete Lesson Plan #1:

#### LESSON PLAN TEMPLATE RESIDENCY I & RESIDENCY II DATA POINT 2 & DATA POINT 3

Lesson Title:

Grade/Level:

Date/Learning Experience #:

<p>Curriculum Standards</p> <p><i>State Curriculum Standards – Underline your <u>language/vocabulary words</u></i></p> <p>2.RI.CS.6 Identify the main purpose of a text, including what an author wants to answer, explain, or describe.</p> <p>2.SL.CC.1 Participate with varied peers and adults in collaborative conversations in small or large groups about appropriate 2nd grade topics and texts.</p>	<p>Essential Question</p> <p><i>What question(s) or big idea(s) related to this lesson drives your instruction? Students should be able to answer this question by the end of the lesson.</i></p> <p>Goal: Understand that there are forces that occur when there is a push or pull</p> <p>EQ: How will this help us understand force?</p>
<p>Lesson Objective(s) – Student Learning Outcome(s) for this learning experience</p> <p><i>Objectives use active verbs, are measurable (if applicable), and link to standards. Consider using Bloom’s Taxonomy or Webb’s Depth of Knowledge.</i></p> <p>TLW listen to the teacher read <i>Newton and Me</i> then discuss with the class the purpose of the text with 90% accuracy.</p> <p>TLW collaborate with partners to discuss information from the text and create a Venn Diagram separating the actions in the book into pull or both categories with 85% accuracy.</p>	
<p>Knowing Your Learners</p> <p><i>Describe pre-requisite skills students already know that will help them meet the lesson objective(s). What is your evidence that students need this/these skills(s)? This may include pre-assessment data; student personal, cultural or community assets you have gathered and observations you have made concerning your students.</i></p> <p>Students are able to read and write complete sentences. These learners have an idea of what push and pull are and what happens when you push or pull objects. Students are should be able to communicate their thoughts with a whole group and small group; students should also be able to work in a small group make a cohesive product they they all have contributed in.</p>	
<p>Assessment/Evaluation</p> <p><i>How will students demonstrate understanding of lesson objective(s)?</i></p> <p><b>Informal:</b> <i>How will you monitor student progress towards lesson objectives as you are teaching? (formative assessment)</i></p> <p>The teacher will ask the class a pre-lesson question to see what they remember about push and pull and what may make objects move. This questioning will allow the teacher to use students’ feedback to quickly adjust the lesson if needed. The teacher will also be walking around the room as students work in group to complete their Venn Diagrams; while doing this s/he will be observing students’ discussions to see if they remember important details of the story and if they can apply this to their prior knowledge of what push and pull are.</p> <p><b>Formal:</b> <i>What evidence (formative and/ or summative) will you collect and how will you document student learning/ mastery of lesson objective(s)? A summative assessment is not needed for every lesson, however, it is required for every lesson submitted for CAEP data collection points (e.g., 3000 courses – ECED 3210, READ 3100, SPED 3300, PEXS xxxxx; 4000 courses – ECED 4680, CUA1 4241, SPED 4710, PEXS xxxxx, ECED 4780, CUA1 4391, SPED 4850, PEXS xxxxx).</i></p> <p>Students will be talking about the work at the end of the lesson with the whole class each group will hang their Venn diagrams on the board and the class will discuss</p>	
<p><b>Assessment Modifications</b></p> <p><i>What modifications will you make on assessments/ evaluations for students with diverse and/ or special needs (i.e. students with IEP or 504, struggling learners, advanced learners) and will these modifications be within/ for small groups or individuals?</i></p> <p>Students that have trouble communication through speak could show what they know about push and pull by doing a demonstration or showing a picture of some kind.</p>	

similarity and differences in the diagrams. The teacher will be assessing the students' diagrams and their communication in whole group, s/he will be looking for clear detailed answers and justifications of why the answer is on their diagram, in the place it is in. This will help the teacher determine if the students understand the difference between push and pull and if they are able to vocalize their opinions. The teacher will be using a rating chart through out the lesson to insure that documentation has been taken down letting the teacher know where the student stands at that moment.

**Academic Feedback:** *The feedback can be both oral and/or written. What strategy/ies will you suggest to move student learning forward? How will feedback promote student understanding of the learning objective?*

The teacher will present questions to students like: How do you know that this outcome of the action? what do you think is like that but has a different effect? what activity could represent both push and pull?

The teacher will make try to make conversation between teacher and peer and between peer and peer, to do this the teacher will be walk around asking have you all thought of anything that your parents do that cause a push or pull? What do we do in the classroom that could cause a push or pull?

**Theory/Rationale for Assessment/Evaluation:** *I am administering/giving/collecting \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for theory and/or research.*

Test are not always the way to go with all projects. In this unit plan their have been not pencil and paper teacher made test; there have been activity sheets that students work on while accomplishing a hands on activity but not a summative assessment test. Students can show their understanding in a variety of ways. The goal for this lesson is for students to work with a partner to collaborate and create a Venn Diagram that shows push and pull and activities that represent them. Students must use prior knowledge of what a Venn Diagram is then have to tell the difference in an action and if it produces a push or pull. To understand if students have these concepts down the teacher will be observing and making in two columns of a rating system one for peer discussion of topics and one for presenting the information and being able to explain their thinking. Rating systems can be a quick easy way for teachers to see where students are in their understanding of a topic (Morrow 2012)

#### Academic Language Demands

**Function and Product of the Lesson** *The function is the verb, usually a Blooms verb (e.g., analyze, interpret, recount), that guides the language objective of the lesson. This includes a product that students will either write, say, present, or do that involves Academic Language (e.g. essay, present, recount).*

#### Identify

**Academic Vocabulary** *What specialized terms and phrases do students need to understand and use to complete the function? These may include terms underlined from the state curriculum standard(s).*

#### Discuss

#### Create

**Content Vocabulary** *What are the key vocabulary words, symbols, or sounds in this lesson? These may include terms underlined from the state curriculum standard(s).*

#### Connect

#### Collide

#### Push

#### Pull

#### Force

#### **Syntax and/or Discourse (not Early Childhood)**

**Syntax** *What are the specific ways or conventions for organizing symbols (e.g., linear, horizontal, words (grammar), phrases, or graphics) that students need to know to be able to do what you are asking?*

**Discourse** *What are the specific ways in which members of a discipline (e.g., scientist, historian, etc.) talk, write, and communicate knowledge that students need to know to be able to do what you are asking (e.g., essays, presentations, performance, journal, debate, historical account, signal)?*

**Language Supports** *What general instruction will you provide to help students in the whole class (e.g., word walls, learning partners, guided notes) learn the discourse/syntax? What focused instruction (e.g., Venn diagrams, graphic organizers, outlines, student examples, sentence stems) will you provide to help students learn the discourse/syntax (can be completed in small groups)? What individual instruction that targets the needs of an individual student(s) will you provide to help that student(s) learn*

the discourse/syntax? What opportunities will you provide for students to practice language/vocabulary and develop fluency? What tools (e.g., EQ or vocabulary board, Venn diagram, anchor chart, vocabulary cards, graphic organizer, peer support, sentence stems, pictures, table, chart, thinking map, modeling, sort, song, body movements, games) will you use to help students meet the language demands?

**General Supports** – Strategies used to support the whole class and may be used to support more than one demand (e.g., Venn diagram, learning partners, word wall, anchor chart, vocabulary cards, graphic organizer, sentence stems, pictures, table, chart, thinking map, modeling, sort, song, body movements, games). These strategies can cross disciplines and be used in a variety of lessons.

**The book *Newton and Me*, Venn Diagram**

**Targeted Supports** – Strategies that focus toward a specific language demand (e.g., Venn diagrams, graphic organizers, outlines, examples, sentence stems). These may be addressed during small groups. These can be general supports that are modified for specific students or groups of students.

**Vocabulary Wall, Vocabulary Cards**

**Individual Supports** – Supports used to target the specific needs of an individual student (e.g., ELL, student with autism, struggling reader or writer, student with significant language delays). These students may or may not have been formally identified and may or may not have an IEP or 504 plan.

**Word Stems, Pictures to put in the Venn Diagram, Print of a student’s primary language under the English sentences in the book**

**Language Theory/Rationale:** I am \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/or research.

The class will be focusing on a select set of vocabulary; these words can have a deeper meaning that students may not think about when they first hear them. The teacher will also be using all of these throughout the unit so the student can develop this deeper understanding of the words. The teacher is using a wide variety of materials to help support students thought throughout the lesson, especially with vocabulary. The teacher has used a few main supports for the whole class by having a book that give some of the words context and used a Venn diagram to help students know the difference in the words and their meaning. These are also great visual aids for supporting all students. Visual aids are crucial for a classroom because they help the class as a whole but they also get the ELL, students with a learning disability, or other students that may have a special need accomplish a task.

Instruction – When designing your instruction, consider when you will implement formal and informal assessments/evaluations, when you will provide feedback, and when you will teach academic language. Therefore, this section should include aspects written above.

Lesson Part	Description of Activities and Instruction (Teacher Does)	Description of Activities and Instruction (Students Do)	Meeting Individual & Group Needs / Learning Styles <i>Plans instruction to meet the needs of individual students. Adaptations are tied to learning objectives. Specific individual or group learning includes requirements in IEP or 504 plans.</i>
<p><b>Set/Motivator:</b> <i>Restate and address your Essential Question. How do you engage student interest in the content of the lesson? How does this relate to previous learning? Use knowledge of students’ academic, social, and cultural characteristics.</i></p>	<ol style="list-style-type: none"> <li>1. The teacher will ask students talk about what they remember about push and pull.</li> <li>2. They will discuss the topic then TTW introduce the text <i>Newton and Me</i>.</li> <li>3. S/he will point out important vocabulary from the text.</li> <li>4. TTW then read the <i>Newton and Me</i>.</li> <li>5. There will be pre-made questions put on sticky notes</li> </ol>	<ol style="list-style-type: none"> <li>1. The learners will travel to the rug.</li> <li>2. TLW think about then talk about what they remember push and pull to be.</li> <li>3. TLW look at the book <i>Newton and Me</i> then listen to the important vocabulary the teacher mentions.</li> <li>4. TLW then listen to the book <i>Newton and Me</i>.</li> </ol>	<p>A student that has a physical disability will have ample room to move and have easy access to the rug. If there is a hindrance this reading can be moved to a different part of the room. Students that have a hard</p>

	<p>through out the book made by the teacher.</p> <ol style="list-style-type: none"> <li>6. While reading the text the teacher will ask these questions to the class.</li> <li>7. Once the book has been read TTW ask the class what they thought the purpose of the book and the information was.</li> </ol>	<ol style="list-style-type: none"> <li>5. TLW will look at pages recognizing sticky notes attached to pages.</li> <li>6. TLW think about the questions on the sticky notes and try to answer them.</li> <li>7. Students will finish listening to the text then think about what the purpose of the text was.</li> </ol>	<p>time seeing the can sit near the front or have another copy of the book to follow along. If a student needs to be a active part in the learning then they may be the book holder for the reading.</p>
<p><b>Instructional Procedures/Learning Tasks:</b> <i>Provide specific step-by-step details of lesson content aligned with objectives, utilizing a variety of teaching strategies.</i></p>	<ol style="list-style-type: none"> <li>1. Once the discussion is over TTW tell the students they will be working with groups of 2 to 3 people to make a Venn Diagram.</li> <li>2. The students will then make groups, after they do this TTW provide them with a large piece of paper and makers.</li> <li>3. TTW ask the students to find a space in the room to work.</li> <li>4. While students are doing the this TTW walk around and observe students. conversations with peers about the different details of the text that can fit into their push pull or both diagram.</li> <li>5. After 25 minutes or so the teacher will ask students to finish up and bring the Venn Diagrams back to the rug.</li> <li>6. As the students bring their diagrams TTW help them hang them on the board beside each other so they can compare the different information or similarities of each one.</li> </ol>	<ol style="list-style-type: none"> <li>1. TLW listen to the teacher's instructions about making small groups.</li> <li>2. Students will pick partners to work with for this activity. (If this becomes difficult or if it would cause a classroom management issue the teacher can help the students pick partners. They can do this by helping match pairs of students they know will work well and productively together.)</li> <li>3. TLW then go with their groups and find a space within the classroom they can work in.</li> <li>4. The students will wait in this space for the teacher to bring around materials for them to begin their work.</li> <li>5. The students will collaborate, discuss and their ideas and make a Venn Diagram showing actions push, pull or</li> </ol>	<p>Students who are gifted may need a challenge so the teacher could allow students to do the activity on their own or if they finish early ask them to add more or write some sentences that help represent their diagram. Some students with IEPs may need to work with an assistant or teacher in a small group or one-on-one. The teacher could also provide some simple pictures to help students that have a communication disability to use instead writing words or speaking.</p>

	<ol style="list-style-type: none"> <li>7. Once the last group has made it to the rug TTW ask each group to look at all the different diagrams and think about if any of the others had similar content on it as theirs did.</li> <li>8. TTW ask the students to put their hand on their head if they have a noticing.</li> <li>9. After giving the students a minutes or two to look at all the information s/he can ask students what their noticing's were.</li> <li>10. Once all students that wanted to answer discussed their thought the teacher will ask them to turn to their knee partners.</li> <li>11. TTW ask them to share one thing that the author from our text wanted us to know or what was his purpose.</li> <li>12. The teacher should give a waiting time, looking around making sure all students shared with their partners.</li> <li>13. TTW then as students to share what their partner said to them. S/he should ask on person from each set of pairs.</li> </ol>	<p>actions that are both. Students will do this by writing the action and drawing a picture of the action beside it.</p> <ol style="list-style-type: none"> <li>6. TLW then bring their work to the rug and hang it on the board with help from the teacher.</li> <li>7. Students will look at and read all the different diagrams. They will notice similarities and differences in the actions and the category the actions are in.</li> <li>8. When the students have a noticing the will put their hand on their head so the teacher knows they have an idea to share.</li> <li>9. TLW will listen to their peers' thoughts and wait until they are called upon to tell the class their noticing's.</li> <li>10. All students that want to share should make sure to put their hands on their head and answer the teacher. After all students have done so they will turn to their knee partners</li> <li>11. Students will share what they think the authors purpose of writing the text was with their partners.</li> <li>12. TLW talk with their partner unit the teacher brings their attention back to the front.</li> </ol>	
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		13. One student from each set of pairs will share what their partner said to them.	
<b>Questions and/or activities for higher order thinking:</b> <i>These are open-ended and cannot be answered by yes or no. These can be asked at various points throughout the lesson and guide rather than direct student thinking.</i>	Relate what we learned from the book <i>Newton and Me</i> to things that we do. Compare your Venn Diagram with the one beside it, do you see anything that you could have put on your diagram? Distinguish the difference between push and pull. Predict what may happen if you push a wagon rather than pull the wagon.		
<b>Closure:</b> <i>Makes clear connections to real-world situations and requires students to reflect on and apply their learning through verbal or written expression.</i>	<ol style="list-style-type: none"> <li>1. The teacher will then ask the students to turn to their knee partner and share what they thought the purpose of the book was.</li> <li>2. At the end of the day TTW then ask the students to reflect on their day and ask them to think about the Venn Diagram they made. S/he will then ask the students to share with a knee partner what they thought the purpose of that activity was. TTW then ask the students to now think about how this related to their story they read, <i>Newton and Me</i>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Students will get with their knee partner and share their what they thought the purpose of the book was. Then they will share their partners answer with the class.</li> </ol>	

**Material/Resources/Technology:** *What do you need for this lesson? Identify the specific materials, resources and instructional technologies that you will use. How will you model these technologies to engage students and add value to and improve their learning?*

The book *Newton and Me*, Markers, Large easel paper, area for students to spread out and work in small groups.

**Co-Teaching Strategies Used:** *(highlight and explain all that apply): One Teach, One Observe; One Teach, One Assist; Station Teaching; Parallel Teaching; Supplemental Teaching; Alternative (Differentiated); Team Teaching*

One Teach one assist would be most successful with this lesson; The lead teacher would be reading the main story the assistant teacher can be helping with students' behavior and attention in the time. Then once students break into small group the teacher and assistant can help groups build their thought and sort them properly in their Venn Diagrams.

On teach one observe could also be used here. The teacher is looking for student understanding of the content of the text related to prior material. While one teacher read the observer can watch students body language and their facial expressions to see if they are following or look confused about the material. During small group time the observer can take notes of students that really contributed their thoughts and students that didn't seem to have a good understanding of the exercise.

**Instruction Theory/Rationale:** I am \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/or research.

The teacher used a book as a set motivator it get the students engaged in discussion and interested in the topic of push and pull. Students have a simple idea of what push and pull are because its something that they do every day, but this text and the activity try to take their understand and go one step further. The students are in partners using Venn Diagrams in this lesson. The teacher is letting the students take the lead on the learning because it makes them feel like they have ownership of their learning (Morrow 2012). The class has a conversation at the beginning about what the purpose of the book is and what it told us but the students are connect their understanding of a concept to actual actions. They were provided pictures in the book to give them an idea of what the task looks like that produce a push or pull. Then when they go to work with a partner they are pushed to think abstractly because they must recreate an action in their head and what it should look like.

**Meeting Individual & Group Needs Theory/Rationale:** I am \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/or research.

The students are reading a book and discussing information with the teach, which helps students that learn from talking reading and seeing pictures. During this time the students also have a chance to express what they think and listen to other students' thoughts and opinions as well. Students learn a lot from their peers with is why having this conversation is important. It is also very important that students collaborate and work together to not only to hear what their peers think but also to learn those very important social skills (Morrow 2012).

#### Management/Safety Issues

**Management Issues:** *Explanation of processes and/or procedures, transitions from one activity to another, strategies for gaining attention, motivating students to engage in the lesson and focus on learning (e.g. work boards, posted procedures, modeling, positive feedback, redirection).*

The students are traveling a few times through out this lesson which means there is opportunity for students to get into fights, or get distracted by simple things. A good way to cope with this is to use transition activities. Students will also be working in small groups which can make the classroom become loud and noisy. A good way to solve this problem is to turn on soft classical music, which can stimulate learning, then lets the students know there's no reason they should be louder then this music; so when they hear themselves getting louder then the music they now to lower their voices. When the students become so loud the teacher can no longer hear the music s/he can then let them know they need to low their voices.

**Safety Issues:** *Are there any safety issues that need to be considered when teaching this lesson (e.g., outdoor activities, lab experiments, equipment use)? Expectations are explicitly outlined and are included as part of the instructional process.*

Students will be working in small groups so there is opportunity for students to get into fights or get to playful and rough. Students will also be traveling from the rug and to the rug; students are able to trip then fall or step on someone's hands. There's also the chance of a wondering child that like to wonder off which could happen easily during this time.

#### References

Morrow, L. M. (2012). *Literacy development in the early years: Helping children read and write* (8th ed.).

Boston, MA: Pearson.

## Complete Lesson Plan #2:

### LESSON PLAN TEMPLATE RESIDENCY I & RESIDENCY II DATA POINT 2 & DATA POINT 3

Lesson Title:

Grade/Level:

Date/Learning Experience #:

<p><b>Curriculum Standards</b></p> <p><i>State Curriculum Standards – Underline your <u>language/vocabulary words</u></i></p> <p>2.PS2.1. <u>Analyze</u> the push or the pull that occurs when objects collide or are connected.</p> <p>2.ETS1.3. <u>Recognize</u> that to solve a problem, one may need to break the problem into parts, address each part, and then bring the parts back together</p>	<p><b>Essential Question</b></p> <p><i>What question(s) or big idea(s) related to this lesson drives your instruction? Students should be able to answer this question by the end of the lesson.</i></p> <p>EQ: How are push and pull seen in the natural world?</p> <p>Goal: Recognize push and pull are effects of many different types of forces.</p>
<p><b>Lesson Objective(s) – Student Learning Outcome(s) for this learning experience</b></p> <p><i>Objectives use active verbs, are measurable (if applicable), and link to standards. Consider using Bloom’s Taxonomy or Webb’s Depth of Knowledge.</i></p> <p>TLW work with a small group to construct a tornado in a box by manipulating materials in a way that will create a funnel of powdered sugar; students will 80% accuracy.</p>	
<p><b>Knowing Your Learners</b></p> <p><i>Describe pre-requisite skills students already know that will help them meet the lesson objective(s). What is your evidence that students need this/these skills(s)? This may include pre-assessment data; student personal, cultural or community assets you have gathered and observations you have made concerning your students.</i></p> <p>These students are 7 to 8 years old. They already have the understanding of what push and pull are; they understand and can communicate that when an action is done and a force is put upon an object that object will have a reaction that is a pushed or pulled. Learners have been experimenting with water and other wind forces, the teacher is taking it up a notch by talking about the wind in a tornado which is different then our everyday wind. Students have an understanding of engineering and building with diverse materials. To do these exercise students must understand how a tornado is formed and how it pulls objects by pushing wind against the objects.</p>	
<p><b>Assessment/Evaluation</b></p> <p><i>How will students demonstrate understanding of lesson objective(s)?</i></p> <p><b>Informal:</b> <i>How will you monitor student progress towards lesson objectives as you are teaching? (formative assessment)</i></p> <p>The teacher will be walking around assessing students engineering technics and if they can come to the conclusion that they have to break down a tornado and think about its different components. The teacher will be taking anecdotal notes mentioning students that she feels has accomplished this skill of breaking down a problem to help solve it and communicating their knowledge of push and pull. Students should be able to convey that a tornado pulls materials towards it because the humid warm being push up a funnel.</p> <p><b>Formal:</b> <i>What evidence (formative and/ or summative) will you collect and how will you document student learning/ mastery of lesson objective(s)? A summative assessment is not needed for every lesson, however, it is required for every lesson submitted for CAEP data collection points (e.g., 3000 courses – ECED 3210, READ 3100, SPED 3300, PEXS xxxxx; 4000 courses – ECED 4680, CUA1 4241, SPED 4710, PEXS xxxxx, ECED 4780, CUA1 4391, SPED 4850, PEXS xxxxx).</i></p> <p>Students will be constructing a tornado in a box; as the students do this and after they have completed this task the teacher will be looking for the students use of key concepts. The class has learned about the collision of cold and hot air that make the atmosphere unstable. This collision causes hot air to be pulled up and the cold air to</p>	
<p><b>Assessment Modifications</b></p> <p><i>What modifications will you make on assessments/ evaluations for students with diverse and/ or special needs (i.e. students with IEP or 504, struggling learners, advanced learners) and will these modifications be within/ for small groups or individuals?</i></p> <p>For students that need modification to help them communicate with the teacher better, they can write out their ideas and draw a diagram of what the machine should look like and do. The</p>	

be push down; sometimes when this happens it forms a funnel of winds being pulled up ward. The teacher will be observing students thought process through out the project and when looking at their final product. The teacher will ask the students how they build their boxed tornado and why they did the way they did. The most important component here is that students understand the knowledge behind the tomato. That these winds caused by air pressure pulls air towards it which then pulls objects towards it. The conversation about the process and the thoughts behind it is more important then the products. To make sure the hears the students or has some form of information from the student about this the teacher will be asking the students present their project at the end when go to do the final test. They will also close the lesson by making a final statement in an exit ticket telling why they felt their projects did or didn't work and how this related to push and pull.

teacher should allow students that need support with these task to work in a group that includes a teacher an assistant, or a more knowledgeable peer so the student can have some scaffolding on the topic. Students are gifted and need a challenge can work alone or

**Academic Feedback:** *The feedback can be both oral and/ or written. What strategy/ ies will you suggest to move student learning forward? How will feedback promote student understanding of the learning objective?*

The teacher will pose important questions for the students such as how will the tornado rotate, what does a regular tornado need to make wind and how can we relate this to push and pull reactions.

**Theory/Rationale for Assessment/Evaluation:** *I am administering/ giving/ collecting \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for theory and/ or research.*

I looked at multiple components of what students needed to know and took up multiple assessments throughout the lesson to see if students have a firm grasp of the concepts. Students are working with hands on materials to make a product, however, in this instant the process is more important then the product (Isbell 2013). The teacher is looking at the different conversations about how the wind pulls and pushes and how students break down the task. Students have seen a video of an indoor tornado but it is not the same kind as the one they will be making. Students are going to know components of a regular tornado, the winds that occur with it, and also what a kind of indoor tornado looks like and some ideas that could relate to theirs. Knowing this the teacher will be asking appropriate questions and listening to student's justifications and explanations.

#### Academic Language Demands

**Function and Product of the Lesson** *The function is the verb, usually a Blooms verb (e.g., analyze, interpret, recount), that guides the language objective of the lesson. This includes a product that students will either write, say, present, or do that involves Academic Language (e.g. essay, present, recount).*

#### Construct

**Academic Vocabulary** *What specialized terms and phrases do students need to understand and use to complete the function? These may include terms underlined from the state curriculum standard(s).*

#### Analyze

#### Recognize

**Content Vocabulary** *What are the key vocabulary words, symbols, or sounds in this lesson? These may include terms underlined from the state curriculum standard(s).*

#### Tornadoes

#### Air pressure

#### Push

#### Pull

#### Syntax and/or Discourse (not Early Childhood)

**Syntax** *What are the specific ways or conventions for organizing symbols (e.g., linear, horizontal, words (grammar), phrases, or graphics that students need to know to be able to do what you are asking?*

**Discourse** *What are the specific ways in which members of a discipline (e.g., scientist, historian, etc.) talk, write, and communicate knowledge that students need to know to be able to do what you are asking (e.g., essays, presentations, performance, journal, debate, historical account, signal)?*

**Language Supports** *What general instruction will you provide to help students in the whole class (e.g., word walls, learning partners, guided notes) learn the discourse/syntax? What focused instruction (e.g., Venn diagrams, graphic organizers, outlines, student examples, sentence stems) will you provide to help students learn the discourse/syntax (can be completed in small groups)? What individual instruction that targets the needs of an individual student(s) will you provide to help that student(s) learn the discourse/syntax? What opportunities will you provide for students to practice language/ vocabulary and develop fluency? What tools (e.g., EQ or vocabulary board, Venn*

diagram, anchor chart, vocabulary cards, graphic organizer, peer support, sentence stems, pictures, table, chart, thinking map, modeling, sort, song, body movements, games) will you use to help students meet the language demands?

**General Supports** – Strategies used to support the whole class and may be used to support more than one demand (e.g., Venn diagram, learning partners, word wall, anchor chart, vocabulary cards, graphic organizer, sentence stems, pictures, table, chart, thinking map, modeling, sort, song, body movements, games). These strategies can cross disciplines and be used in a variety of lessons.

**Hands on activity, cooperative learning, video**

**Targeted Supports** – Strategies that focus toward a specific language demand (e.g., Venn diagrams, graphic organizers, outlines, examples, sentence stems). These may be addressed during small groups. These can be general supports that are modified for specific students or groups of students.

**Controlled grouping**

**Individual Supports** – Supports used to target the specific needs of an individual student (e.g., ELL, student with autism, struggling reader or writer, student with significant language delays). These students may or may not have been formally identified and may or may not have an IEP or 504 plan.

Pictures of tornado, picture of tornado in a box, brief directions write down

**Language Theory/Rationale:** I am \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/or research.

The teacher is using old vocabulary and new vocabulary in this lesson. Students are aware of the concept of push and pull and that forces are what cause those. Students interest showed that teacher they want to learn more about push and pull through natural forces. The teacher is giving main vocabulary they will use now and later, as well as going over but not focusing on vocabulary that is within the video and other lessons throughout the day. The teacher has provided some important supports for students to help them get through the lesson and gains some new understanding or solidify knowledge that they have been working on. Having hands on activities, visual aid, videos, and cooperative learning (Shabiralyani, Hasan, & Iqbal 2015) can range to help all the students to individual students like ELL that need more then just a conversation about something to help make an idea concrete.

Instruction – When designing your instruction, consider when you will implement formal and informal assessments/evaluations, when you will provide feedback, and when you will teach academic language. Therefore, this section should include aspects written above.

Lesson Part	Description of Activities and Instruction (Teacher Does)	Description of Activities and Instruction (Students Do)	Meeting Individual & Group Needs /Learning Styles <i>Plans instruction to meet the needs of individual students. Adaptations are tied to learning objectives. Specific individual or group learning includes requirements in IEP or 504 plans.</i>
<p><b>Set/Motivator:</b> Restate and address your Essential Question. How do you engage student interest in the content of the lesson? How does this relate to previous learning? Use knowledge of students' academic, social, and cultural characteristics.</p>	<ol style="list-style-type: none"> <li>1. The teacher will (TTW) bring up a short video that she showed at the beginning of the day to inspire children on making an indoor tornado.</li> <li>2. TTW ask the students to watch the video again.</li> </ol>	<ol style="list-style-type: none"> <li>1. Students will watch the video of the indoor tornado.</li> </ol>	<p>Students that have a visual impairment can sit close to the board.</p>
<p><b>Instructional Procedures/Learning Tasks:</b> Provide specific step-by-step details of lesson content aligned with objectives, utilizing a variety of teaching strategies.</p>	<ol style="list-style-type: none"> <li>1. When the students have finished watching the video TTW ask them what their noticing's about the experiment are.</li> <li>2. The teacher will give wait time for students to think</li> </ol>	<ol style="list-style-type: none"> <li>1. The learner will watch the video and compare it to what they remember seeing the first time and if they see anything different or see something interesting.</li> </ol>	<p>For gifted students that need more of a challenge the teacher can allow them to work in a smaller group of two or so.</p>

	<p>about their ideas and answer the question.</p> <ol style="list-style-type: none"> <li>3. TTW then tell the students that they are going to be making an indoor TTW.</li> <li>4. TTW ask the students to break into small groups of 4.</li> <li>5. TTW ask classroom helpers to come and help hand out materials.</li> <li>6. TTW tell students in the final test the will be using powdered sugar like degree so we can see the funnels that form, for now you will get a small amount to make test when the time comes.</li> <li>7. TTW pose the question of how can you make a tornado with these materials, having the knowledge of tornados and engineering.</li> <li>8. TTW then let students begin working.</li> <li>9. TTW will be walking around listening to student's conversations. She will be taking down anecdotal notes about what the students thinking is and id they can take what they know about the multiple areas of content and apply them.</li> <li>10. The teacher should give a lot of time for students to work and interact with each other on this task.</li> </ol>	<ol style="list-style-type: none"> <li>2. TLW then ask the teacher question and tell what noticing's they have about the video.</li> <li>3. TLW listen to the teacher explain the activity they will do next.</li> <li>4. TLW break into groups of 4 if there is an odd number their will be a group of 5 or smaller group.</li> <li>5. The classroom helpers will help the teacher give out materials.</li> <li>6. TLW listen to explain the final process of the experiment.</li> <li>7. TLW think about the question, how can you make a tornado with these materials, having the knowledge of tornados and engineering.</li> <li>8. TLW then begin working with their group to determine what the materials can be used for.</li> <li>9. TLW have to think about what they have been talking about push and pull, engineering, and some know facts about tornados.</li> <li>10. TLW have all of small group time to do this experiment so they can have conversations with peers and make prototypes then test their ideas and change them so they can work better.</li> <li>11. TLW also have time during art class to work</li> </ol>	<p>Students that need more scaffolding and support to accomplish this task the teach can provide brief directions of what a tornado needs or the task. Students can work anywhere in the room, this can help students that become distracted very easily and help students that have a physical disability. These students can work where ever is most comfortable for them.</p>
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	<ol style="list-style-type: none"> <li>11. The art teacher will come up and help with the project during the student related arts time because they have been integrating their work in class on push and pull into art.</li> <li>12. When the time begins to dwindle down TTW give a 5-minute warning letting students know work time is almost over and time to test their projects is come.</li> <li>13. TTW then give a 1-minute warning allowing students make those very last final touches.</li> <li>14. TTW then ask students to stop and ask who would like to present their project first.</li> <li>15. TTW ask the students to tell the class a little bit of why they did the thing they did to try and make this indoor tornado.</li> <li>16. TTW give students a cup of powdered sugar then tell students to test their machine.</li> <li>17. TTW wait for student reaction then ask how they felt it went and if they can think of any reasons why it may not have worked.</li> <li>18. TTW go to every group so they can test their tornados.</li> <li>19. TTW then ask the students how they felt the</li> </ol>	<p>on this activity because they have been working on activities related to push and pull in art class.</p> <ol style="list-style-type: none"> <li>12. TLW get a warning time of 5 minutes until they do their final test of their tornado. TLW work on getting their final touches on their machine.</li> <li>13. TLW then hear a 1-minute warning, they will know to know make the last touches to their projects then give their focus back to the teacher.</li> <li>14. A group of students will go first.</li> <li>15. Before testing their project, the group will explain why they made their indoor tornado the way they did and how it will make winds that pull objects in.</li> <li>16. TLW get a cup of powdered sugar to use to help test their project. TLW then test their project out.</li> <li>17. TLW wait and watch as they begin the test of their projects, depending on the product TLW react differently.</li> <li>18. Each small group will present their work and go through the same processes as the first group.</li> <li>19. TLW talk about how they thought their experiment went. Did they like it? Was it disappointing</li> </ol>	
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	<p>experiment went. Wait time.</p> <p>20. TTW ask if they think they could have changed something to make their tornados work or work better?</p>	<p>because their machine didn't work?</p> <p>20. TLW then tell if they felt like they could have done anything differently after watching everyone else go and their own projects.</p>	
<p><b>Questions and/or activities for higher order thinking:</b> <i>These are open-ended and cannot be answered by yes or no. These can be asked at various points throughout the lesson and guide rather than direct student thinking.</i></p>	<p>How does this relate to push and pull?  How will this produce winds?  Construct a machine that will produce a indoor tomato.  How does this relate to other forces we have talked about.</p>		<p>Students may show their understanding of the different questions in a drawing form.</p>
<p><b>Closure:</b> <i>Makes clear connections to real-world situations and requires students to reflect on and apply their learning through verbal or written expression.</i></p>	<p>TTW ask the students to do an exit ticket. TTW ask why they felt their projects did or didn't work and how this related to push and pull?</p>	<p>Students will write an exit ticket explaining why their machine worked or didn't, could they make changes? Then will write about how they think it related to push and pull.</p>	<p>Students could come and talk to the teacher one on one or an assistance, then the adult could help the student write the thought they just told them.</p>
<p><b>Material/Resources/Technology:</b> <i>What do you need for this lesson? Identify the specific materials, resources and instructional technologies that you will use. How will you model these technologies to engage students and add value to and improve their learning?</i></p> <p>Three cardboard walls with long slits down the same side, one plastic piece for the door, fan, duck tap, glue, staples, powdered sugar, video of someone making an in door tornado.</p> <p><b>Co-Teaching Strategies Used:</b> <i>(highlight and explain all that apply): One Teach, One Observe; One Teach, One Assist; Station Teaching; Parallel Teaching; Supplemental Teaching; Alternative (Differentiated); Team Teaching</i></p> <p>I think team teaching could be a interesting strategy to take here. One teacher introduces the book and concept then the class watches the video. The next teacher talks about the activity they will do while the other gives out materials. Then once the work begins both teachers are interacting with the students and testing their knowledge.</p>			
<p><b>Instruction Theory/Rationale:</b> <i>I am _____ because my students need _____. This is appropriate because _____. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/ or research.</i></p> <p>In this lesson is all about taking what we know and applying it to make something that we've never done before. Student are being shown a video to give them an idea of the forces that make a tornado possible and taking what they know about the pull that occurs because of a tornado; air is being pulled up the tornado. Knowing this information, the students have to use what they know about engineering to create an indoor tornado. The video and the tornado products will help see things in real life and understand what they look like and are made. Visual representations and visual aid make a world of difference for students and teachers should use them whenever possible (Shabiralyani, Hasan, &amp; Iqbal 2015).</p>			

**Meeting Individual & Group Needs Theory/Rationale:** I am \_\_\_\_\_ because my students need \_\_\_\_\_. This is appropriate because \_\_\_\_\_. Provide citation (APA, 6<sup>th</sup> edition) for learning theory and/or research.

Students are working in small groups to discuss, plan, and create something completely new to them. Students will have to use social skills and self discipline to collaborate with other students. This is important for all students because they all need to learn how to work together and work cooperatively, student must learn how to compromise and listen to others. Its very important for teachers to give as many opportunities for activities like this to happen because it helps student development (Morrow 2012). Students are given visual aid, and hands on materials to let them show their understanding in different ways. Many students get test anxiety (ASI 2014) and struggle with coping with, students will need to work through this for the future but if possible the teacher should allow other means to prove knowledge because of this.

#### Management/Safety Issues

**Management Issues:** Explanation of processes and/or procedures, transitions from one activity to another, strategies for gaining attention, motivating students to engage in the lesson and focus on learning (e.g. work boards, posted procedures, modeling, positive feedback, redirection).

During this activity the students are working on a very large project which means volume control can change.

**Safety Issues:** Are there any safety issues that need to be considered when teaching this lesson (e.g., outdoor activities, lab experiments, equipment use)? Expectations are explicitly outlined and are included as part of the instructional process.

The students are working with materials that they could technically get hurt with if not used properly.

Students should know the proper safety technics so they can engineer their project successfully.

#### References

Isbell (2013). *Creativity & arts with young children* (Text Only) (3rd Edition). Cengage Learning.

Morrow, L. M. (2012). *Literacy development in the early years: Helping children read and write* (8th ed.).

Boston, MA: Pearson.

Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of Visual Aids in Enhancing the

Learning Process Case Research: District Dera Ghazi Khan . *Journal of Education and Practice*

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Albert Shanker Institute. (2014). The magic of words: American educator. 2, 38. p 26. (N/A): A Union of

Professionals. Retrieved from [http://www.aft.org/sites/default/files/ae\\_summer2014.pdf](http://www.aft.org/sites/default/files/ae_summer2014.pdf)

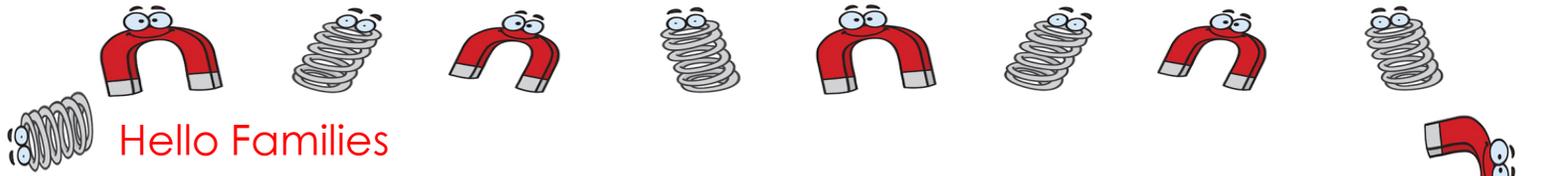
## Unit Evaluation Plan (f)

### **Formative**

Throughout the 2 weeks the teacher will be observing children and taking up work samples to demonstrate that students are making progress in understanding about push and pull. The teacher is doing a lot of questioning to provoke students' thoughts and see if inquiry can taken them one step further. The teacher will also be questioning students and asking them to make statements about prior knowledge that will help them accomplish the understanding of push and pull and the different situations push and pull can be observed. The quick feedback that the teacher gets can help her do mindful changes to her lessons to accommodate for students understand right then.

### **Summative**

In the last lesson, the teacher will ask students to work in small groups to construct an indoor tornado. The students are given materials to use however they would like to use them. The teacher is not expecting an exact replica of an indoor tornado that she knows can be made with the given materials; she is expecting the students to use what they know about wind, tornados and push and pull. Students will have looked at different situations and analyzed the reactions of a force. As a result, they understand and know that there has to be a force causing this funnel and wind; which helps them construct the machine because they know they will have to apply some kind of force to make a push or pulling wind. The teacher will be evaluating the students process of making the project and the information they communicate verbally to their group and to the teacher when presenting the final test of their tornado.



## Hello Families

I am sending this letter because our class is going to start a new unit on push and pull in the coming week. In this unit, we are going to look at a variety of materials and actions that cause a push or pull; here is the standard we will be focusing on 2.PS2.1. Analyze the push or the pull that occurs when objects collide or are connected. Students will be using self-discover in play to see how objects react to each other, as well as learning new vocabulary and discussing different hypotheses in whole group. I am excited to say that the students are already showing interest in the topic and different events that cause a push or pull.

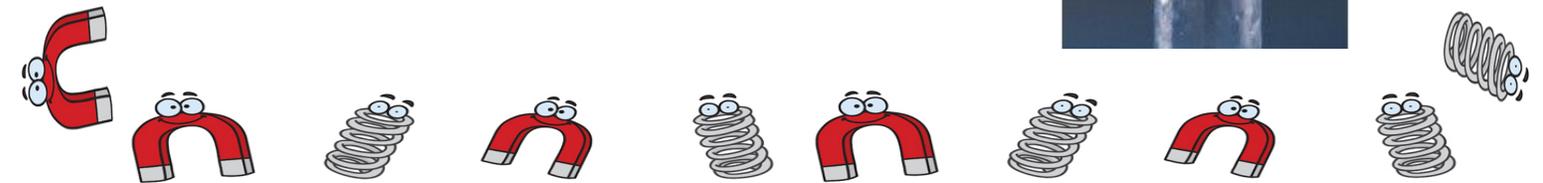
I hope that your family will become excited and talk with your students about the unit and what they are learning throughout the different days. We are going to be doing a multitude of experiments in class but I would like to share some activities that you and your students can do at home. The first activity is a tornado in a jar. The students interested in why tornados pull things towards them or push things away. So this will be an amazing opportunity for exploration of how the tornado in a jar could relate to the real life tornado. The second activity is to just discuss and think about the different things we do that causes a push or pull in everyday life. Throughout your day have conversations with your student about this, maybe write some down for the student to come back and discuss with our class.

If you have any comments, concerns or suggestions you can email, call, message on Class Dojo or come by the school. I hope you have a great time with your student exploring push and pull.

Ms. Dowell

[dowellt@etsu.edu](mailto:dowellt@etsu.edu)

276-591-7446



Students have done something like this in station work so this will be a great chance for them to show their families what they know.

1. Get some kind of bottle, it can be plastic or glass.
2. Put either glitter, dish soap, cooking oil, or something else that water can not mix with properly.
3. Add some water, not to the brim. It should be filled to have about a half of a pinky fingers left.
4. Put the lid to the bottle on tight.
5. Spin the bottle in a circular motion then sit it up side down.
6. Watch the water funnel form.



If you would like more details or an example you can look up this website:

<http://coolscienceexperimentshq.com/tornado-in-a-bottle/>

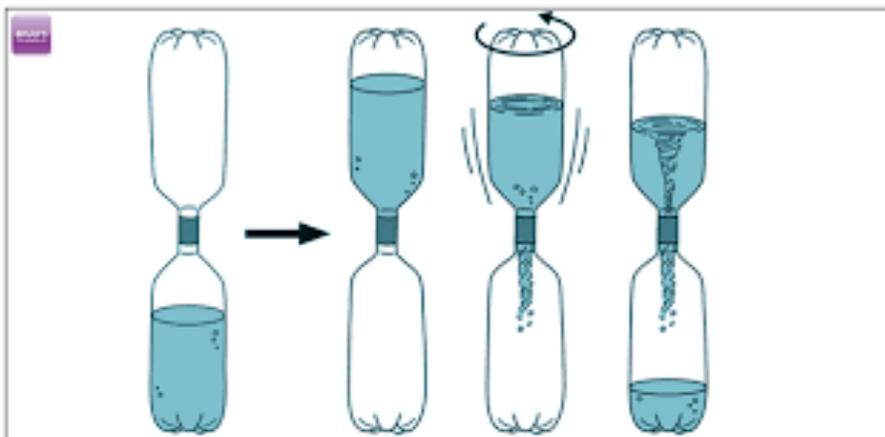
There are some other ways this experiment can be done like with two bottles. This way is harder to accomplish and requires more materials. The process is the same as the experiment with only one bottle, until it comes to putting the bottles lid on.



5. You will have to either make or barrow a bottle connector from the classroom.
6. If you want to make your own you'll need to place a washer (circular metal piece with a hole cut out) on the mouth of the bottle with the liquid inside.
7. Place the second bottle on top with the mouth piece on top of the washer.
8. Then tap (duck tap is best) the two bottles together at the mouth pieces. Make sure the bottles are tapped well and will not leak.
9. Now flip the bottles and move them in a circular motion.

Here is a link to a video that could help the family do the experiment with two bottles.

<https://www.pinterest.com/jaybee25/year-2-science-push-and-pull/?lp=true>



## List of References (h)

### Teachers

- Book List: <https://www.whatihavelearnedteaching.com/12-force-motion-picture-books-engage-young-learners/>
- About tornados and where they occur: <http://www.ustornadoes.com/2013/03/14/tornadoes-dont-happen-in-mountains-or-do-they-debunking-the-myth/>
- Lessons and ideas for activities: <https://www.teachstarter.com/teaching-resource-collection/push-and-pull/>
- Get didn't perspective on push and pull and activities:  
<https://serc.carleton.edu/sp/mnstep/activities/27247.html>
- Great for activities and lessons: <http://www.teachjunkie.com/sciences/19-fun-ideas-resources-force-and-motion/>
- Pinterest has some great exploration ideas for push and pull: <https://www.pinterest.com/jaybee25/year-2-science-push-and-pull/?lp=true>
- This is a must have resource for any science teacher; provides ideas, professional development, articles to keep up to date and that have potential lessons: <http://www.nsta.org/> <http://www.nsta.org/>

### Families

- Help with tornados in bottles/jar:
  - <https://www.pinterest.com/jaybee25/year-2-science-push-and-pull/?lp=true>
  - <http://coolscienceexperimentshq.com/tornado-in-a-bottle/>
- Push and pull website with activity and games: <http://eisforexplore.blogspot.com/2014/02/push-and-pull.html>
- Books (many of these books can be found at your local library or on YouTube being read aloud):
  - Move it! Motion, forces and you by Adrienne Mason
  - Push, Pull Lift by Herman and Nina Schneider
  - Motion push and pull fast and slow by Darlene Stille
  - Magnets Push Magnets Pull by David A. Adler

## Children

- Games:
  - <http://education.abc.net.au/home#!/media/1390665/pushing-and-pulling>
  - [http://www.bbc.co.uk/schools/scienceclips/ages/6\\_7/science\\_6\\_7.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/6_7/science_6_7.shtml)
- Videos
  - <https://jr.brainpop.com/science/forces/pushesandpulls/>
  - <https://www.youtube.com/watch?v=5t1frJFPSBg>
  - [https://www.youtube.com/watch?v=E-SnC\\_WKsCg](https://www.youtube.com/watch?v=E-SnC_WKsCg)

## List of Resources Used in the Unit (i)

### Materials and supplies

Day 1: Pencil, new center materials (magnets, books about different types of push and pull we may see, books about motion) the book *Newton and Me*, Markers, Large easel paper, area for students to spread out and work in small groups.

Day 2: Read *Give It a Push! Give It a Pull!*, *Newton and Me*, Large thick rope, More books in the library about push and pull

Day 3: the book *Motion*, pencil, paper, marbles, wooden ruler, bowling set/ or DIY at home made.

Day 4: Music/ song students can make a rhyme to, toys and dress up materials, pencil, paper.

Day 5: *Magnet Max*, KWL chart, different kinds of magnets/ different shapes and sizes, metal materials that are easily manipulate, paint, large paper, plastic trays.

Day 6: *Forces of Nature (the weather channel)*, large chart paper, markers, table of natural materials (rocks water, soil, plants, fans), aluminum foil, paper, skewers, straws, tape, small pieces of ply wood.

Day 7: sensory table with water exploration, <http://www.weatherwizkids.com/weather-tornado.htm>, aluminum cooking pans, different kinds of soil, rocks, wood chips, sticks.

Day 8: *The Most Magnificent Thing*, <http://www.weatherwizkids.com/weather-tornado.htm>, ribbon, paper, pencil, cardboard, sticks, paper toile roll, cloth, wind, Lego person.

Day 9: center books(*The Wind Blew* and *Like a Windy Day*), *paper* pencil, cardboard, sticks, paper toile roll, cloth, fan, Lego person, diagrams made in previous settings.

Day 10: *The Most Magnificent Thing* book, stations materials (flipbook, tornado in a jar, the book *Why Does It Happen? Tornadoes Hurricanes and Typhoons*, word wall, books on push and pull and natural forces), three cardboard walls with long slits down the same side, one plastic piece for the door, fan, duck tap, glue, staples, powdered sugar, video of someone making an in door tornado and snack.

## **Print and non-print**

*The Most Magnificent Thing*

*The Wind Blew*

*Like a Windy Day*

*Give It a Push! Give It a Pull!*

*Newton and Me*

*Magnet Max, Motion*

*Forces of Nature (the weather channel),*

Isbell (2013). *Creativity & arts with young children* (Text Only) (3rd Edition). Cengage Learning.

Morrow, L. M. (2012). *Literacy development in the early years: Helping children read and write* (8th ed.).

Boston, MA: Pearson.

## Technology resources

<http://www.weatherwizkids.com/weather-tornado.htm>

<https://www.youtube.com/watch?v=oM1FVAYE2pg>

Shabiralyani, G., Hasan, K. S., Hamad, N., & Iqbal, N. (2015). Impact of Visual Aids in Enhancing the Learning Process Case Research: District Dera Ghazi Khan . *Journal of Education and Practice*, 6(No.19), 223-226. Retrieved November 23, 2017, from <https://files.eric.ed.gov/fulltext/EJ1079541.pdf>

Albert Shanker Institute. (2014). The magic of words: American educator. 2, 38. p 26. (N/A): A Union of Professionals. Retrieved from [http://www.aft.org/sites/default/files/ae\\_summer2014.pdf](http://www.aft.org/sites/default/files/ae_summer2014.pdf)

School District 54. (n.d.). Explore the 5 E's of sciences. Retrieved from <https://sd54.org/resources/5es/>

## Other

Dr. Lange's flying car workshop activity