TENNESSEE AFTERSCHOOL NETWORK

Afterschool Heals Tennessee

Character Development Lesson Unit

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Introduction

Tennessee Afterschool Network established the Afterschool Heals Tennessee Taskforce in 2019 with the goal of developing resources for programs to address opioid and other substance abuse disorders in their communities.

A majority of Tennessee's youth experience one or more Adverse Childhood Experiences. These are stressful or traumatic experiences that interfere with a child's ability to learn and maintain positive physical and mental health.

Afterschool programs have a unique opportunity to support prevention efforts by working with local anti-drug coalitions, prevention education with youth and caregivers, and building protective factors that encourage good decision making and resiliency.

Research shows that students participating in high-quality afterschool programs are less likely to abuse drugs or alcohol. Pair a high-quality program that is intentional about building resiliency and offering prevention curriculum, then we have a winning formula for prevention!

This lesson unit was developed as part of the Afterschool Heals Tennessee toolkit found on www.tnafterschool.org.

Unit Contents

This unit explores different character traits that will build resiliency. Lessons are divided into four sections, ELA Day, Math Day, STEM Day, and Enrichment Day. A variety of activities are presented in each section to be used or modified for grades K – 8. All lessons are tied to Tennessee Foundational Standards.

**Lessons are not original content; lessons are public domain. We've compiled these resources into one lesson unit and connected to Tennessee standards to facilitate learning on this topic.*

Character Development Unit

English and Language Arts (ELA) Day

Focus Word: Impact

According to Merriam Webster Impact means:

1. The impact that something has on a situation, process, or person is a sudden and powerful effect that it has on them.
They say they expect the meeting to have a marked impact on the future of the country.

2. The power of an event, idea, etc. to produce changes, move the feelings, etc.

Ask students describe what is happening in this photo. What do they see that physically changes? Lead them to discover how powerful the asteroid affects the Earth. Is the asteroid smaller, large, etc. How does it change the Earth? Why?

Illustrate how the asteroid physically changes the earth. Lead students to discuss that sometimes events and actions not only have a physical impact but also an emotional impact. It will change you either in a negative or positive way.

Watch the following video.

"Life in Sports"- https://www.passiton.com/inspirational-stories-tv-spots/71-my-life-in-sports

Discussion.

- Have students identify the problem the boy is having. Discuss if any of them can relate to the boy. (In what ways?)
- What does the boy's mom do to affect his attitude about not being able to succeed at everything he is trying his best to do?
- Infer or guess why he did not quit.
- How could the boy's attitude be different if his mom was not supportive?
- Do you agree she had a positive impact on his life? How do you know?
- Why do you believe his mom kept trying to encourage him? Did her words and actions make a difference?
- We have just seen how one person can affect another person. It can be through words, actions, maybe even just a gesture that we can impact someone else.
- We are going to learn about some people who can inspire and impact our lives by learning from their life experiences.

Show billboard featuring Malala Yousafzai to students.

What message is this billboard conveying?

Discuss with a neighbor what it means to be courageous.

Do you know who the young woman on the billboard is?

Watch the video (View video before showing to students)

Grades 4th-8th https://www.youtube.com/watch?v=6by9NEhT9GM

Grades 1st-8th https://www.youtube.com/watch?v=48pFoAObv_w

Discussion Continued

We now have some background knowledge about Malala. Would you describe her as courageous? Why or Why not.

Is there a time in your life you have been courageous? Let us share with one another about our experiences. Did you have an impact on others because of your actions?

We will read about Malala and some other girls she inspired to be courageous.

Malala is a voice of hope – advocating for the 130 million girls around the world who are not in school. She is young, bold and determined to make an impact for girls and their right to education.

Her biography is like no other. Malala is a Pakistani activist, student, UN Messenger of Peace and the youngest person ever awarded the Nobel Peace Prize. At age 15, she was shot by the Taliban for speaking out against their ban on girls' education. Malala recovered, continued her campaign and, as co-founder of Malala Fund, is building a global movement of support for 12 years of free safe, quality education for girls.

Malala inspires us with her fearlessness and captures our hearts with her humility. "I tell my story, not because it is unique, but because it is not. It is the story of many girls," declares this remarkable young woman.

And yet, her most notable achievements are inspiring young girls the world over.

Rachel, a 14 year-old student in Nigeria— "Now, for me, I have decided not to allow life circumstances to deter me from my goals. I have decided to be a medical doctor. I am more determined to finish my education even through financial challenges. I believe girls are equal with boys and deserve to be educated."

Sydney, a 16 year-old student in Mexico, — "I hope speaking about education on my local radio station will help women send their daughters to school. No matter how much they fight now, one day when they see daughters studying and changes achieved, they will say it was worth fighting for."

Fatima, a 17 year-old student in Afghanistan — "I study and learn by heart to reach my dreams. My hope is not just for me, but that all girls shall reach their dreams of education and freedom."

Malala's organization believes that girls are the best investment in the future peace and prosperity of our world. When girls learn for 12 years it drives economic growth, creates a healthier workforce and promotes lasting peace.
She calls on global leaders to take action and is seeing great results. But there is much more left to do to see every girl in school. Perhaps you would like to help. Visit Malala Fund's website for information about girls' education and opportunities to get involved: www.malala.org

Malala truly believes that girls should learn history. And make it. Courage. Pass It On!

Prove it! Complete the following chart below with information from the passage we read.

Name of courageous girl	Courageous Act	Why the courageous act was important	Write your opinion about the courageous act
Malala	Publically stood up for girls' rights to get an education, even though it was very dangerous for her to do so.	Everyone should be given the opportunity to receive an education. If no one stood up for what was right nothing would change.	I believe she is a very brave young woman. She had to be scared but she stood up for what she believed anyway.
Rachel			
Sydney			
Fatima			

Discussion

Do you believe it is easy to be courageous? Why might it be a difficult thing to do? Watch the following video about a young man who finds himself in a very difficult situation.

https://www.passiton.com/inspirational-stories-tv-spots/91-classroom

Discussion

- Have you ever found yourself in a similar situation as the boy in the video?
- How was he courageous?
- Do you think it was easy for him not to tell his friend the answer?
- How would you have handled this situation?
- We can have a positive impact on others by making the right choices even if they are hard to make.

Let us do an activity that will help us make the right decisions. (next page)

Think about something in your life that you want to change. Change can be difficult and requires courage to make it happen. If you want to make an impact in your own life, the steps below can help guide you through the process.

Decision –Making Chart

Step one

Define the decision that needs to be made. *Clearly write down the decision that needs to be made. For example: I want to improve me grades.*

Step two

Brainstorm all the different ways to make this decision happen.

In this case some possible solutions are:

- To write down all my assignments
- Ask questions if I do not understand
- Read more

Remember when you brainstorm ideas write down everything you think of.

Step Three

Write down all the positives or negatives for making or not making the decision/Change.

Positives: *(Examples: I will learn more, I will be more organized, I will be proud of myself)*

Negatives: *(Examples: I will have to work harder, I will have to be accountable, It will take time away from my hobbies.)*

Step Four

Weight the positive and negatives for the each of the different alternatives.

Give each positive and negative a score out of ten for how important it may be. A score of 1/10 would mean it was unimportant. A score of 10/10 would mean it is the most important. There are no wrong answers.

Step Five

Select the best alternative.

Consider the best way to accomplish your decision. Look at the positives and negatives and make your choice. Write down your choice.

Step Six

Implement the solution. Now write down a plan to implement your decision.

Step Seven

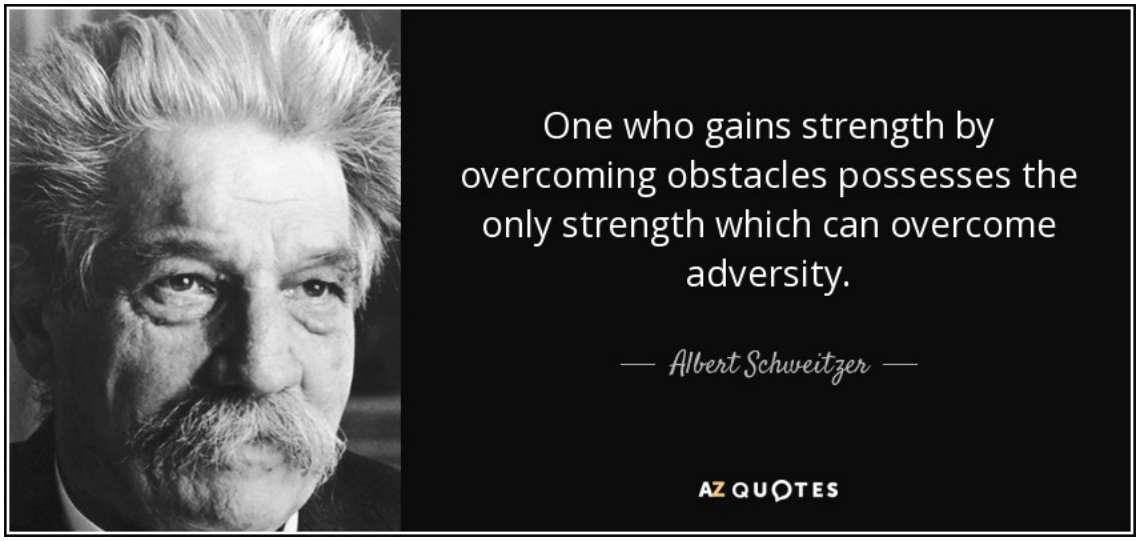
Monitor the progress. Set a date when you will review your progress and reassess how well you are managing to make progress towards your change.

Step Eight

Review and Learn from your progress.

On the date you wrote down, review your progress. Assess yourself to see how much progress you have made. If it hasn't worked out, don't be hard on yourself. Just start the decision process over again. The only time things don't work out is if you quit trying!

Math Day



Character Trait: Overcoming

Focus Word: Overcoming

[oh-ver-kuhm]

According to Merriam Webster Impact means:

verb (used with object), overcame, overcome, overcoming.

1.to get the better of in a struggle or conflict; conquer; defeat: *to overcome the enemy.*

2.to prevail over (opposition, a debility, temptations, etc.); surmount:*to overcome one's weaknesses.*

3. to overpower or overwhelm in body or mind, as does liquor, a drug, exertion, or emotion:

I was overcome with grief.

4.*Archaic.* to overspread or overrun.

verb (used without object), overcame, overcome, overcoming.

5. to gain the victory; win; conquer: *a plan to overcome by any means possible.*

How can an obstacle like this impact our lives? We have to learn strategies to overcome obstacles we face. Watch the following video and think about how Mallory overcame a major obstacle in her life.

https://www.passiton.com/inspirational-stories-tv-spots/159-mallory-weggemann

About Mallory Weggemann

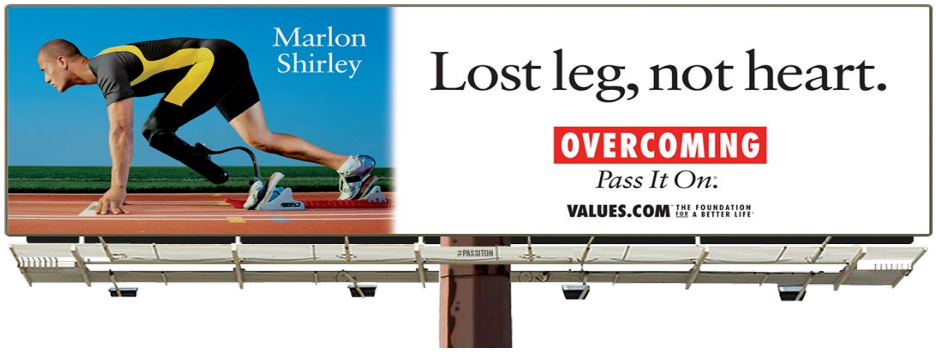
Mallory Weggemann has been a competitive swimmer since the age of seven. On January 21, 2008, she went to the hospital to receive the final epidural injection to help treat her back pain caused by postherpetic neuralgia. The epidural injections left Mallory a paraplegic with complete loss of movement from her abdomen down. Just three months after her injury at the age of 18, Weggemann chose to return to the pool. She found one thing unchanged, her love for swimming. Now, she's a Paralympic Gold Medalist.

Have students discuss in whole group what happened to Mallory.

- Why was she able to overcome this situation? Was it fair? Did she deserve it? How did it impact her life? How was her attitude her greatest asset? What does resiliency mean?
- What can we learn from Mallory?

Let's read about other people who are just like us that have overcome huge obstacles in their lives. How did the impact of their circumstances depend on their attitude and the choice they made to overcome? (Do first billboard in whole group)

You may want to choose only one billboard for your group.



When you tackle a challenge that you cannot even fathom tackling—when you accomplish that, the amount of integrity and the will and the heart that you'll get from that experience is what will set you up for your life.

—Marlon Shirley

About This Billboard

Marlon Shirley saw his fair share of struggles as a young boy, living with his mother who was gone a lot and moved frequently to keep trouble from catching up with her. Shirley was five years old when, living with other children on the streets of Las Vegas, he was picked up by social services. He was placed at an orphanage where he began the "pinball life of an institutional orphan."

His life in the children's home would literally leave a lasting mark. In 1984, the caretaker of the orphanage was letting the kids jump on and off a riding lawnmower while he mowed the lawn around the facility. Shirley slipped, and the lawnmower ran over his leg. Shirley later woke up with an amputation above the ankle, his foot gone forever.

Shirley bounced around to various foster homes over the years until he was adopted by a family from Utah in 1987. He took the Shirleys' last name and feels blessed to have been found by them.

Shirley struggled through high school, trying to overcome the habits and tendencies of his past—of simply trying to survive. Midway through his senior year in 1997, close to flunking out and humiliated, Shirley decided he had had enough. Determined to do something with his life, he signed up to participate in the Simplot Games in Idaho, the largest open high school indoor track meet west of the Mississippi. He hoped to be offered a college scholarship, but the odds were against him. Shirley had little track experience. Moreover, he was hobbling on crutches, because he had fractured a bone in his leg while dunking a basketball a few weeks earlier.

Something in Shirley drove him to put all his effort into the track meet. He entered the high jump competition, where he hopped over on his good leg and dove headfirst over the bar. He cleared 6'6", a height which would set a Paralympic world record. A month later, Shirley competed in the Disabled Sports USA track meet in California, where he left $13,000 richer. Later in high school he had more surgeries and a second, higher amputation to the same leg following a football injury.

Despite having an upbringing that might have broken many people, Shirley has not only found a way to prevail, but has found the drive to become a world-class athlete. He owns two world records, in the 100-meter dash and the long jump. In 2000, at the Paralympic Games in Sydney he won the 100m dash and took silver in the high jump. He was the first and only lower leg amputee to break the 11-second mark in the 100m dash, setting a time of 10.91 seconds in 2007.

At the 2004 Olympic Games in Athens, Marlon Shirley won the Paralympic 100-meter gold medal for the second time. He has been called "the world's fastest amputee."

Shirley said, "It's something I train for every single day. It's almost just like an automatic movement of my body springing down the track. We all have our own type of disabilities—mine just happens to be physical, and you can see it very easily when I run. But you can't tell it by the time I get done racing."

Shirley's prosthetic foot is made of carbon fiber titanium, materials developed in the aerospace industry. He has tested the limits of what a prosthetic foot can do—and the limits of the human spirit. Most importantly, Shirley never allowed his physical difference to limit his accomplishments.

"I remember running around on crutches just like I'd run around if I had another foot," he said. "I definitely never looked at myself any differently than anyone else."

That determination was tried in 2008, when he headed to the Beijing Paralympics following a year marred by knee infections and surgeries. He took to the track for the 100m finals, determined to defend his gold-medal title. But midway down the track, his Achilles tendon tore, and he fell to the ground in agony. Refusing to leave the race uncompleted, Shirley rose and finished the race, crossing the finish line to the roar of a cheering crowd, standing unified in recognition of Shirley as an astonishing champion.

Today, as a 10-time World Champion and Paralympic champion, Shirley is a spokesperson for the Paralympic Movement and other sponsors. He is also a motivational speaker, bringing to others his inspirational message that there is nothing we cannot achieve—provided we have the determination and the belief in ourselves to overcome our challenges.

Overcoming. Pass It On!

What obstacles did Marlon Shirley have to overcome?

_____

_____

How was he able to overcome them?

_____

_____

_____

Was his attitude an important part of his success? How do we know?

_____

_____

_____

What evidence from the passage proves he was successful?

_____

_____

_____

This billboard about Rising Above features Bethany Hamilton; surfer.

People can do whatever they want if they just set their heart to it, and just never give up, and just go out there and do it.

—Bethany Hamilton

About This Billboard

Bethany Hamilton began surfing as a child and at age 11 participated in her first competition. Her plans of becoming a pro surfer were seemingly ended at age 13 when she was attacked by a 14-foot tiger shark on October 31, 2003 while surfing near Tunnels Beach in Hawaii. She lost her left arm just below her shoulder and miraculously survived the attack.

Within months, Bethany was back on her surfboard. She continues to pursue her dream of becoming a professional surfer and has entered numerous contests. She won 5th place at the 2004 National Scholastic Surfing Association Nationals Championships, has made the finals in several other events, and has won three contests. Her determination to rise above adversity continues to inspire the people around her.

Rising Above. Pass It On!

VIDEO: *(View video before showing to children)*

Video Clip: https://www.youtube.com/watch?v=MWeOjBCi3c4

Discussion:

- What happened to Bethany to change her life?
- How did this impact her dreams?
- What choice did she make to change her future?
- How did her outlook help her overcome this terrible tragedy?
- In what ways would Bethany's future have changed had she not chose to keep pursuing her dreams?

Activity

We have read stories about how people have overcome huge obstacles to achieve the impossible.

They did not let their obstacles impact them in a negative way. Try the following experiment and see if you can achieve the impossible.

(Hand each student one note card. Give them the task of cutting a whole large enough for them to fit through.)

Can it be done??? Let them try before you show them!

How to Step Through an Index Card

Squeeze your entire body through an index card!

What if we told you that you can fit a quarter through a dime-sized hole in an index card? Would you believe it was possible? It is possible, and we can even show you how to fit your entire body through an index card. Don't believe us? Try it for yourself!

1

Fold the notecard in half the long way.

2

Use the scissors to make a cut about 1 cm from one end of the notecard. The cut should start at the fold and end just before the edge of the notecard. Be careful not to cut all the way through!

3

Repeat step 2 on the other end of the notecard.

4

Unfold the notecard. Use the scissors to cut along the crease of the large middle section. Do NOT cut through the slits on each end that you created in the previous steps

5

Fold the notecard once again.

6

Start on one end of the notecard. Make a cut about 1 cm away from your first cut. Start on one side and go almost to the edge on the other side but do not go all the way through.

7

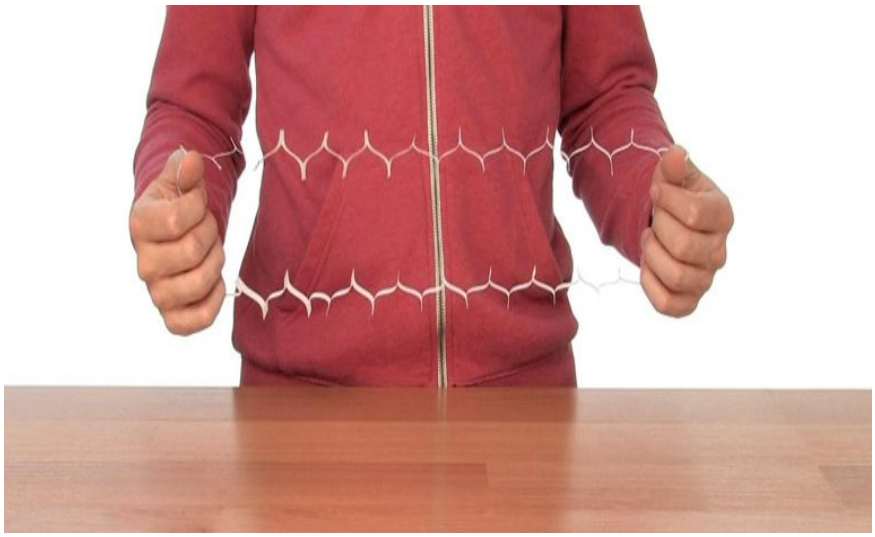
Make another cut about 1 cm away from your cut in step 6. This time, however, start your cut from the opposite side of the card. Again, go almost to the edge on the opposite side.

8

Continue moving along the card making cuts about 1 cm apart. Each time, alternate which side you start the cut from and do not cut all the way to the other side.

9

Once you have cut to the other end of the card, carefully unfold the notecard and gently pull it open.



10

You should have a giant ring which you can step through and maybe even squeeze your entire body through!

How did you use Math to accomplish this impossible task?

HOW IT WORKS

Although an index card seems small, the surface area of a little 3in. x 5in. index card is 15 square inches. By carefully cutting the index card in the pattern above, you are redistributing the entire surface area across the length of the ring, all while keeping the surface area connected. The closer together you make your cuts, the longer the ring will be. The surface area of the card never changes, so the width of the ring directly impacts the length.

Activity

Building a Bridge:

Sometimes in life we have obstacles to overcome. They can seem overwhelming but with love, support, and a good attitude it is possible. All of these qualities help build a mental bridge to overcome obstacles, so they impact us in a positive way by making us work hard to achieve our goals.

We also at times need a physical bridge. Can you construct one using straws?

Summary

Working as engineering teams, students design and create model beam bridges using plastic drinking straws and tape as their construction materials. Their goal is to build the strongest bridge with a truss pattern of their own design, while meeting the design criteria and constraints. They experiment with different geometric shapes and determine how shapes affect the strength of materials. Let the competition begin!

Beam bridges are the most common type of bridge designed by engineers and relatively easy to imagine and build. Yet, with truss designs, the possibilities are unlimited. To design bridges, engineers perform careful analysis of bridge geometries and the anticipated applied loads that so they can determine the exact place of the reaction forces. Engineers also consider the most effective materials to achieve a balance of tension and compression. Engineers determine the bridge type, design and materials; analyze site conditions, geologic and environmental factors; and establish detailed design plans and budget/funding schedules.

Learning Objectives

After this activity, students should be able to:

- Describe and design model truss bridges.
- Identify effective geometric shapes used in bridge design.
- Identify several factors that engineers consider when design bridges.

Materials List

Each group needs:

- 20 plastic drinking straws (not the bendy type)
- scotch tape
- scissors
- measuring stick or ruler (or one for the class to share)

For the entire class to share:

- small paper cup
- 200-300 pennies (to use as weight)
- wooden support structure (or use two desks)
- balance (for weighing, or count the pennies instead of weighing)

To make the wooden support structure (see Figure 5; optional; may use two desks instead):

- two 7-inch (18-cm) pieces of 2 x 4 wood (for bridge abutments; use scrap 2 x 4s)
- 7 x 13-inch (18 x 33-cm) piece of .25-inch (.6-cm) thick wood (for water base between abutments)
- hammer and nails
- (optional) blue paint for the base of the support structure, to represent water under the bridge

Finished dimensions of the wooden support structure (optional; may use two same-height desks instead). Dimensions may vary from those below, but these particular dimensions can be made by using scrap 2 x 4s. The most important dimension is the inside length or span. The total length should allow for enough space to place the bridge on the "abutments."

- inside length "span" = 10 inches (25 cm)
- total length (span plus two abutments) = 13 inches (33 cm)
- abutment height = 3.5 inches (9 cm)
- abutment width = 7 inches (18 cm)

Introduction/Motivation

After the Industrial Revolution, bridges became more and more sophisticated as iron and steel became more commonly available. By using iron and steel, engineers could design bridges capable of supporting larger loads and spanning greater distances, making it possible to link cities and communities through shorter, more direct routes and crossing obstacles such as waterways or other natural features that had previously blocked passage. Sometimes we take it for granted that bridges provide important links between places. They enable us to get to resources, conduct commerce, travel and visit other people. The design of bridges is important to the transportation networks we depend upon.

We know there are many different types of bridges.

Who can name a type of bridge? *(Answers include: Beam, truss, arch, suspension, and cable-stayed.)*

What makes a bridge a beam bridge? (Review these key points: A beam bridge is usually a simple structure made of horizontal, rigid beams. The beam ends rest on two piers or columns. The beam weight [and any other load] is supported by the columns or piers.)

Where on a beam do the forces act? (Review these key points: Compressive forces act on the top portion of the beam and bridge deck, shortening these two elements. Tensile forces act on the bottom portion of the beam, stretching this element.)

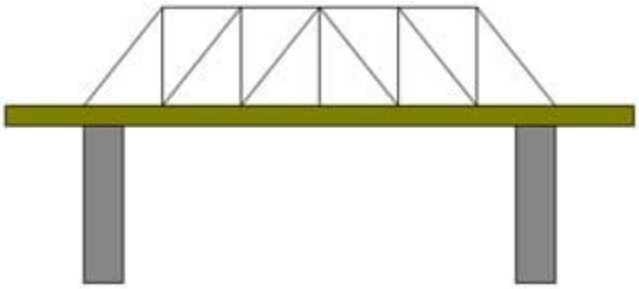


Figure 1. Howe-Kingpost truss design.

Beam bridges are the most common type of bridges, and include truss bridges. Truss bridges distribute forces differently than other beam bridges and are often used for heavy car and railroad traffic. In a truss bridge, the beams are substituted by simple trusses, or triangular units, that use fewer materials and are simple to build.

Truss bridge construction rapidly developed during the Industrial Revolution; they were first made of wood, then of iron and finally of steel. During this time, different truss patterns also made great advances. Many truss systems originated in the mid-1800s are still in use today. The Howe Truss, one of the more popular designs, was patented by William Howe in 1840. His innovation was his use of vertical supports in addition to diagonal supports (see Figure 1). The combination of diagonal and vertical members created impressive strength over long spans; this made the truss design ideal for railroad bridges. Howe's truss was similar to the existing Kingpost truss pattern. However, he used iron for the vertical supports and wood for the diagonal supports. Although iron and wood are not used as much today in modern bridges, the Howe Truss pattern is still widely used. See Figures 2-4 for other truss patterns.

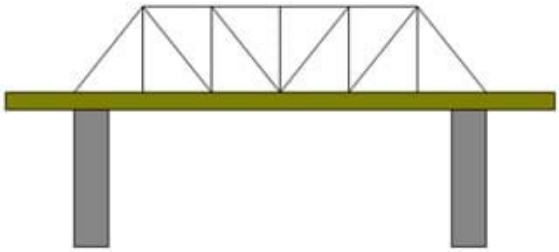


Figure 2. Through Truss – Pratt Truss design.

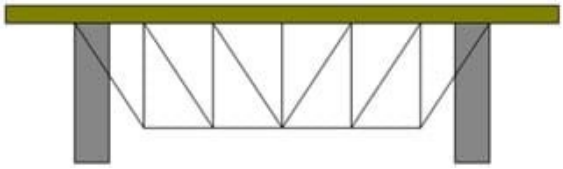


Figure 3. Deck truss design.

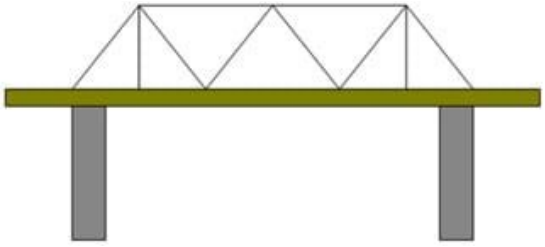


Figure 4. Warren truss design.

Today, we are going to act as teams of engineers making bridge models. We have been hired by a city to create a bridge to cross one of the local rivers. However, the city does not want the bridge to affect the fish population in the river below it. Engineers always consider the design objective when creating models. Our design objective is to make a bridge that spans the river (scaled down to a distance of 10 inches [25 cm], supports the most weight for the cars that will pass over it, and does not disturb the river's fish. To simulate the load of the cars, our bridge must have a place to securely hold a small cup in the center of the span. To demonstrate environmental limitations on the design, no part of the bridge may touch the "water" (or bottom of the wooden support structure) and the bridge cannot be taped to the wooden support structure. Engineers often have many design constraints or limitations that are part of their job assignments. Today, our design constraints not only include the environmental and weight constraints, but also limited budget and materials using straws and tape as our construction materials.

Vocabulary/Definitions

abutment: A mass, as of masonry, receiving the arch, beam, truss, etc., at each end of a bridge.

beam: A long, rigid, horizontal support member of a structure.

beam bridge: A bridge that consists of beams supported by columns (piers, towers).

column: A long, rigid, vertical (upright) support member of a structure.

compression: A pushing force that tends to shorten objects.

deck: The "top" of the bridge on which we drive or walk.

design: To form or conceive in the mind. To make drawings, sketches or plans for a work. To design a new product. To design an improved process.

engineer: A person who applies her/his understanding of science and mathematics to creating things for the benefit of humanity and our world.

model: (noun) A representation of something, sometimes on a smaller scale. (verb) To make or construct something to help visualize or learn about something else.

span: The length of a bridge between two piers.

tension: A pulling or stretching force that tends to lengthen objects.

truss: A structural frame based on the geometric rigidity of the triangle and composed of straight members.

Activity

Before the Activity

Figure 5. Wooden support structure for the testing station. Blue represents the water below the bridge. The end blocks represent bridge abutments.

- For bridge testing, make a wooden support structure (see Figure 5; optional), or place two desks ~10 inches (25 cm) apart.
- Gather materials and make example square and triangle shapes with tape and straws as shown in Figures 6 and 7.
- Divide the class into groups of two students each.
- ***Remind students scissor safety rules!***

With the Students

Figure 6. Example square construction.

1. **Discuss truss bridges with students.** Ask students to vote by a show of hands to the following question, "Which shape is more stable, triangles or squares?" Tally their responses and write the totals on the classroom board. Explain with visual demonstrations that squares are less stable than triangles. Do this by showing example straw shapes similar to those in Figures 6 and 7. Stand the shapes up on a desk and push down on the top of them. With very little force applied, the open square shape twists, while the square shape composed of inner triangles withstands much more force.

2. **To each team, pass out 20 straws, scotch tape, scissors and a ruler.** Remember, you are teams of engineers making model bridges using straws and tape as your construction materials. Think carefully about what your design will look like. The design objective is to make a bridge that spans the river and supports the most weight. Your bridge design must span a distance of 10 inches (25 cm), which means that the bridge must measure longer than that so it can rest on the abutments on each side of the river. Your bridge must have a place to securely hold a small cup in the center of the span. When we test your bridge, pennies will be added to the cup until the bridge collapses. That amount of pennies and its cup will be weighed. Other design constraints to consider are that no part of the bridge may touch the "water" (or bottom of the wooden support structure) and the bridge cannot be taped to the wooden support structure. Also, the materials are limited. While you can cut your straws to any length you want, you will not be given any additional (or replacement) straws even if you accidentally cut them to lengths you don't want. So, think, sketch and measure before you cut. Another point to make: A bundle of straws taped together does not satisfy the "spirit" of this bridge-building activity. However, it is not necessary to have bridges look as if small cars could go over them. If necessary, show students example truss designs (see Figures 1-4) as examples of the approach to take (not to copy).

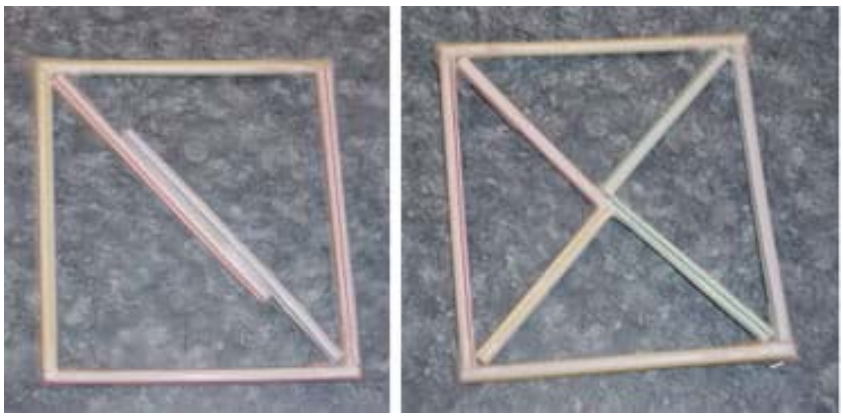


Figure 7. Examples of different cross-bracing techniques using the triangle shape.

3. **Give the student teams time to create their bridges.** Give students time to brainstorm ideas, draw sketches, and make plans and calculations before doing any cutting and taping with their limited number of straws.

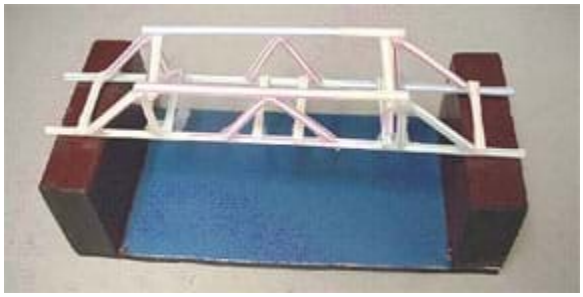


Figure 8. Example straw bridge design (Howe-Kingpost) placed on the wooden support structure for strength testing.

4. **Before strength testing the bridges, ask each team:** Predict how much weight you think will make your bridge collapse. Record predictions on the board. Place each bridge on the wooden support structure (see Figure 8). Position a small paper cup on the bridge at the center of the span; do not place the cup at any other location. Gradually fill the cup with pennies until the bridge collapses or the cup falls off (see Figure 9). Weigh the cup and the pennies on the balance. Make a note of this weight, and record it on the board next to its prediction. Repeat to test all bridges. Note, it may be helpful to add a lot of pennies quickly at first until it appears that the bridge is beginning to fail. At that point, add fewer pennies at a time, more carefully and slowly. The winning bridge design is the one that supports the most weight, while meeting the design criteria and constraints.

Figure 9. This straw bridge was so strong that it took more than a cup of pennies to make it collapse.

5. **Conclude by leading a class discussion of the bridge strength testing results.** How would they improve their bridge design? Have students from each engineering team describe what they would do to make their bridges stronger.

Students create beam bridges.

Troubleshooting Tips

Use plastic straws that are not the flexible or "bendy neck" type. If only flexible type straws are available, cut off the straw ends that contain the flexible sections. Since this reduces the straw length, give students 25 straws per group.

Using a balance to calculate the weight of the pennies in the cup is a quick method to determine how much weight each straw bridge held before it collapsed. If a balance is not available, count the number of pennies for weight comparison.

If rulers are not available, measure the span by marking its width on another piece of paper as a handy reference. Or, explain how students can obtain simple measurements using full sheets of copy paper (8 ½ x 11 inches). For example, with a 10-inch span, it would be desirable to make the bridge about 11 inches or equal to the longer dimension of the paper.

Assessment

Pre-Activity Assessment

Voting & Demo: Ask students to vote by a show of hands their opinions to the following question. Tally the votes and write the totals on the classroom board.

- Which shape is more stable: triangles or squares? (Explain with visual demonstrations that squares are less stable than triangles. Stand some example tape and straw shapes [Figures 6 and 7] on a desk and push down on the top of them. With very little force applied, the empty square shape twists, while the square shape composed of inner triangles withstands much more force.)

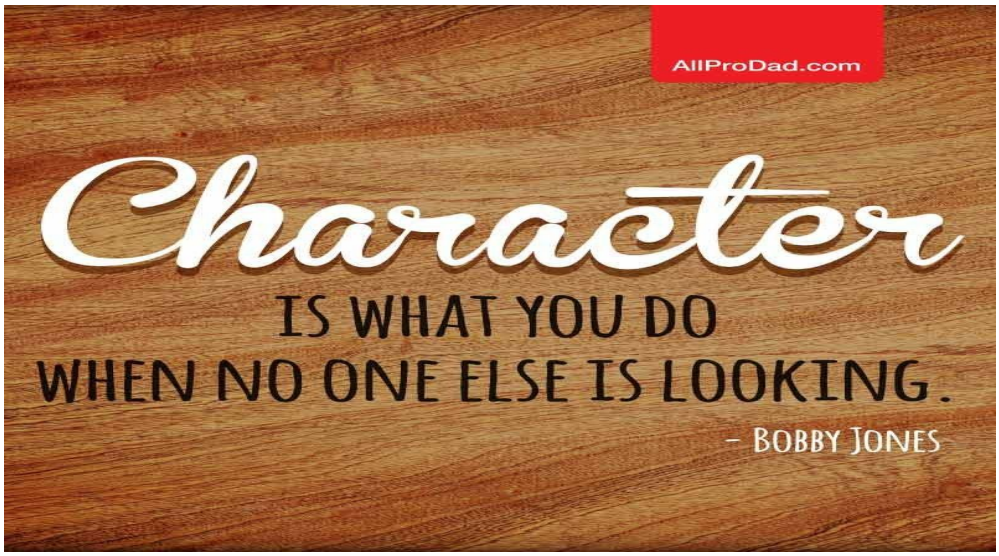
Activity Embedded Assessment

Prediction: Before testing, ask teams to predict how much weight will collapse their bridges. Record predictions on the board.

Post-Activity Assessment

Re-Engineering: Ask students how they might improve their bridge designs, and have them sketch or test their ideas.

STEM Day



Focus Word: Character

1. The way someone thinks, feels, and behaves: someone's personality-usually

   - He rarely shows his true *character*—that of a kind and sensitive person.
   - This is a side of her *character* that few people have seen.
   - the different aspects/facets of her *character*
   - Certain *character* traits are helpful in the teaching profession.

   Pride, his one *character* flaw, caused his downfall.

Give examples of good and bad character words.

(Examples)

Positive Character Traits List:	**Bad Character Traits List:**
Honest	Disrespectful
Patient	Dishonest
Happy	Rude
Respectful	Greedy
Sincere	Selfish
Loving	Mean
Kind	Unkind
Caring	Sneaky

Make It Mine -

1. Let kids define character traits in their own words and share an example of someone they know who displays that positive characteristic.
2. Each student will come up and tell about someone whom they think has good character and what that characteristic is, and they will give a few examples of what they think some bad characteristics are.

Discussion: Describe a person with good character?

Look at this woman. What do you think she is doing? Does this woman have good character? Why? How do you think this will impact this man's life? What do you think the woman in the back watching is thinking? Then, ask children to write down three ways people can show good character. Next, have children share these ways with the group.

Play video:

https://www.youtube.com/watch?v=Z8oJV_mBY9g

- What message is this video delivering to you?
- In what ways is it inspirational?
- Discuss how the people in this video exhibit good character traits.
- How where they choosing to make a difference in the world?

Watch this video: https://www.passiton.com/inspirational-stories-tv-spots/115-peer-pressure

- Do you think the kids in the video who are using peer pressure have good character or bad character? Why? Discuss.
- How do you think you could influence someone to have good character? Discuss.

Now that we have talked a little about *character* and watched this short clip about it, we are going to learn about someone who had good *character,* even in the face of adversity, when many were against him.

Show Billboard Students: This billboard about Character features Jackie Robinson (1919-1972); first black Major League Baseball player.

Do you know who this man is?

What do you think the message on his billboard means? Explain.

"I'm not concerned with your liking or disliking me - all I ask is that you respect me as a human being."
—Jackie Robinson

About This Billboard

When Jack Roosevelt "Jackie" Robinson was born in 1919 in Cairo, Ga., nobody could have predicted that he would grow up to represent the height of athletic achievement—and also knock down racial barriers in many aspects of society, from sports to politics to business.

One of five children raised in relative poverty by a single mother, Robinson was destined to transcend his circumstances. Through the strength of his character, he recorded many "firsts" that had tremendous impact on the United States during the civil rights era.

Robinson attended UCLA, where he became the first person to letter in four sports during the same year. He served in the U.S. Army before beginning his professional baseball career, which spanned from 1947 to 1957. In baseball, despite unmitigated racial discrimination from management, teammates and fans, Robinson possessed the courage to defy retaliation and end 80 years of baseball segregation. Robinson crossed the color line and made his debut with the Brooklyn Dodgers in 1947 as the first African-American player in Major League Baseball.

He was an outstanding base runner, stealing home 19 times in his career—more than any ball player since World War I. As a disciplined hitter, a versatile fielder and an outstanding defensive player, Robinson won Rookie of the Year in 1947 and Most Valuable Player in 1949 for the National League. He was the first African-American inducted into the Baseball Hall of Fame and became a member of the All-Century Team. He received a championship ring when he led the Dodgers to a 1955 World Series victory over the New York Yankees. Major League Baseball retired Robinson's number 42—never to be worn by another ball player—in recognition of his accomplishments on and off the field.

Robinson's historic achievements in baseball were but one aspect of his life and legacy. He was a champion of civil and human rights and a staunch supporter of Dr. Martin Luther King Jr. and the Anti-Defamation League of B'nai Brith. A significant fundraiser for the NAACP, he was a major figure in national politics, influencing leaders such as Presidents Eisenhower, Kennedy and Nixon, Hubert Humphrey, and Nelson Rockefeller. He became the first black writer to have a nationally syndicated column for a white-owned publication. In his later career, he founded the Jackie Robinson Construction Corporation to improve living conditions of black Americans in metropolitan areas. In the 1960s, he helped establish the Freedom National Bank, an African-American-owned financial institution based in Harlem, New York. And he was the first black vice president of a major American corporation, working for 10 years for Chock Full O' Nuts.

After his death in 1972, Robinson became one of only two baseball players to be awarded the Congressional Gold Medal, and President Ronald Reagan also awarded him the Presidential Medal of Freedom.

Looking back, we may always envision Jackie Robinson in his uniform on the baseball field. But in addition to being a phenomenal athlete, Robinson was a pioneer, a hero, and a representative of many values that continue to inspire us today. He stands as a true example of innovation and foresight, based in the strength of character to achieve any goal you can imagine.
Character. Pass It On!

Watch this video: Jackie Robinson's Bio

https://www.youtube.com/watch?v=CX3tv9uKj1I

Clips from the movie about his life "42":

https://www.youtube.com/watch?v=I9RHqdZDCF0

https://www.youtube.com/watch?v=upeKFdDWk4I

Jackie Robinson's billboard says, "Here's to You, Mr. Robinson. Character, Pass it on!" What do you think that means? Students will answer the questions below by writing their answers down on paper. When these are complete, volunteers will be picked to share with the class.

1. How do you think Jackie Robinson's character affected his life?

2. If Jackie Robinson had listened to people who didn't want him to play baseball, because he was African American, how do you think his life would be different?

3. Have you ever met someone with good character? What do you think qualifies as good character? Explain.

4. Have you ever met someone with bad character? What do you think qualifies as bad character? Explain.

5. What are some of the characteristics that Jackie Robinson had that made him a man of good character? Explain.

6. Do you have good character? Why? Explain.

7. How are you able to pass on good character? Explain.

There are many different good character traits. This science experiment is about flexibility. It is a good character to be flexible, rather than to get upset and stubborn when everything doesn't go your way.

Watch video:

https://www.youtube.com/watch?v=rW2g5cwxrqQ&list=PL87SYpmCgR71VeWIiTXUC1WG8O8CUScqO

After watching this video. This kid is stuck in his way of thinking. He is *stagnate/ non-moving/ unchanging* in the way he thinks about having fun. Being this way, is not a good character trait. We must be able to be flexible when things do not go our way, or when we need to change.

Activity

Flexibility – Teaching Kids Character through Science

Flexibility: Teachers Note

Flexibility is the character development word of the day. We will teach character with visual or word analogies. Today we chose a fun science experiment about absorbency to help in teaching more about flexibility. The main concept discussed throughout the science experiment is that the water was not stagnant. It was moving, changing and adapting. Sometimes being flexible is kind of like being a chameleon. You become more flexible to go with the flow. Give some examples of when it is good to be flexible. One example is explaining what would have to happen if we had something fun planned as a family but someone else called us and might really need our help. We would have to change and adapt our plans, letting go of our own desires, to be willing to do something for someone else. Talk a little bit about how it is important to remain flexible and

maintain a good attitude with change in a lot of circumstances. However, tell them also to know that we don't want to become a chameleon when it comes to try and fit in with society. We don't want to be willing to change and be flexible when we know that contradicts what we know to be right. A good example for kids might be in school there are a few kids that decide to break the rules at recess. They want you to join them. If you did, you might be being flexible, but it is not the right kind of flexibility because you know you are changing and going against what is the right thing to do. Talk about all these things as they watched the water absorb into the towel – obviously moving and changing. It took a bit of time, to see the blue and yellow colors finally come together to make green. It was a great visual to show something changing or adapting. This original science experiment is at All for Kids.

All you need for this experience is 3 clear plastic cups, water, food coloring and paper towel.

Watch changes began to happen. Explain that that is called "absorbency." When one is flexible, we all benefit.

Now that you have completed the experiment:

1. How is being flexible a good character trait? Can you remember a time that you had to be flexible? Explain. If you cannot think of one, you can make up a situation where you could be flexible, when something did not go as planned.

2. What happens when someone isn't flexible when things do not go their way? What is the result?

3. How can you be more flexible in situations that do not go as planned?

4. Have you always been a flexible person? Be honest. Explain.

Activity:

Making slime is another way to experiment with being flexible. Let us make some.

SUPPLIES FOR MAKING SALINE SOLUTION FLUFFY SLIME

- White Elmer's Washable Glue {PVA Glue}
- Foaming Shaving Cream {we used Barbasol brand sensitive skin}
- Baking Soda
- Food Coloring
- Saline Solution {for sensitive eyes, store brand contains both sodium borate and boric acid}
- Bowl, Spoon, Measuring Cup, Tablespoon

WHIPPING UP SALINE SOLUTION FLUFFY SLIME

STEP 1: Measure 3-4 cups of shaving cream into a bowl.

STEP 2: Add color! We used neon food coloring, but there are so many choices.

STEP 3: Next, add a 1/2 cup of glue to the shaving cream and mix thoroughly. Add 1/2 tsp of baking soda too.

STEP 4: Add 1 tablespoon of the saline solution to the mixture and start whipping!

STEP 5: Once you get the mixture thoroughly whipped and incorporated, you can pull it out with your hands!

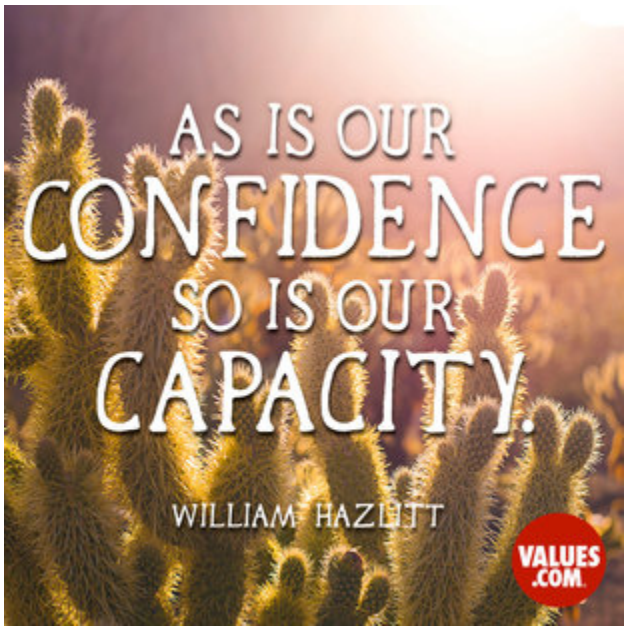
STEP 6: Spend a few minutes kneading the fluffy slime.

Repeat with different colors if you like or enjoy the one batch!

How is slime flexible? Why should you be flexible like slime? Why?

Now when you are playing with your slime, it is a reminder of how we should be flexible when life does not go the way we want it to go.

Enrichment Day



Focus Word: Confidence

Look at this quote. What do you think this means? (Let students say what they think it means.) Make sure they understand that it means that we can only do as much as we believe that we can do. If we do not have confidence to achieve a goal, then it is unachievable so, having confidence is very important.

Watch this video:

https://www.passiton.com/inspirational-stories-tv-spots/125-ballet

- Why do you think this little girl think she is going to win the grand prize trophy? Discuss.
- How do you think her confidence will help her? Discuss.

Now that we have talked a little about *confidence* and watched this short clip about it, we are going to learn about someone who had confidence to do things her way despite what others had to say.

Show Billboard Students:

Do you know who this young woman is? What do you think the message on her billboard means?

Watch this video: https://www.youtube.com/watch?v=eNxO9MpQ2vA

Watch the short video about Grace Vanderwaal:
https://www.passiton.com/inspirational-stories-tv-spots/154-grace-vanderwaal

Grace Vanderwaal

I am not like everyone else. I don't pretend to be. I don't want to be. I am me. —Grace VanderWaal

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About This Billboard

Hailed by Rolling Stone as a "pop prodigy," VanderWaal, 13, skyrocketed to fame after winning the 11th season of NBC's top-rated America's Got Talent and releasing the best-selling EP *Perfectly Imperfect* and debut album *Just the Beginning*.

The ukulele-wielding performer is on track to become one of Generation Z's brightest stars, writing and singing songs about her own life experiences and prides herself on living a normal life. Recently named Billboard Women in Music's 2017 Rising Star, she is also one of Billboard's 21 Stars Under 21 for the second time and recognized in Variety's Youth Impact Report, VanderWaal also is a YouTube and social media influencer who is on a mission to use her incredible voice to empower young girls. She joined the Pass It On campaign to spread the importance of believing in yourself.

Confidence. Pass It On!

Let us read her story:

Grace VanderWaal is a 14-year-old singer, songwriter, and ukulele player who at 12 became the youngest participant to win the reality TV talent show 'America's Got Talent' (AGT) in ten years. Winning AGT brought her 1 million dollar in prize money and a three-night headline act in an AGT show in Las Vegas. She is also was in the very first holiday special from AGT. After winning AGT, she appeared on many talk shows and performed her original songs from the talent competition. She has made guest appearances on 'The Ellen DeGeneres Show and on 'The Tonight Show Starring Jimmy Fallon'. Winning the AGT also escalated her into the list of 21 Under 21, "music's hottest young stars," by Billboard magazine. She announced on Instagram that a lyric video for her popular song "I Don't Know My Name" is in the works. She also teased her fans on Twitter about her upcoming album by posting pictures of her first professional recording session.

Reportedly, Grace VanderWaal started composing her first song using a wireless microphone when she was only three years old. She, however, took singing and songwriting seriously about a year before appearing on AGT. She wished to get a ukulele for her 11th birthday after watching YouTube videos of others, especially of Twenty One Pilots band member Tyler Joseph, playing the instrument. When her mother didn't take it seriously, thinking she would never play it, Grace bought one for herself with the money she received for her birthday. She soon started learning ukulele by watching YouTube videos. Even though she started performing at open mike events in her neighborhood, she performed on stage in front of a large crowd only after getting into AGT. She auditioned for the show with her original song "I Don't Know My Name." Her performance impressed Howie Mandel enough to win his "Golden Buzzer" act which sent her directly to the Live Shows. The video of her performance during the audition has received over 44 million views on YouTube, most for any AGT video.

She originally started writing because she was "really bored" and writing songs was "fun" for her. While watching movies, she would often try to imagine what the character was feeling. Her urge to empathize with the characters on screen became her inspiration for writing songs. She said that even though she has been writing songs for some time, she started sharing her songs with others only before getting into AGT. According to her, her songs provide a peek inside her head. All her performances on AGT were based on original songs she herself wrote. The song she sang for the audition, "I Don't Know My Name", is a song about finding a place in the world. The next song she performed, "Beautiful Thing", is a song dedicated to her older sister. The song "Clay", which she performed on the finally, is a song about dealing with bullying. According to Judge Howie Mandel, she is the "most unique, brightest star to come out of one of these shows." Right after her audition for AGT, judge Simon Cowell proclaimed that she could be "the next Taylor Swift." Even rock icon Stevie Nicks, who appeared on the final episode of the show, said that Grace has what it takes to go to the top. She received a bouquet of flowers from Taylor Swift after her win.

Being touted as "the next Taylor Swift" is bound to put a tremendous pressure on a kid. If the success of singers who previously won AGT is any clue, Grace might not have a smooth road ahead. However, what separates her from others is that her words are original and heartfelt. Her cool and quirky songs possess a depth that is exceptional for such a young age. She has already signed a deal with Columbia Records.

Another video:
https://www.youtube.com/watch?v=VQODLWSiyys

https://youtu.be/i8ym7uH8cGQ

Grace VanderWaal was born in Kansas, U.S and later moved to Suffern, New York. She lives with her mother Tina, father David, who is a vice president of marketing at LG Electronics, older brother Jacob, who is enrolled in Camden Military Academy, and older sister Olivia. Her sister is also her best friend. Talking about what she would do with her prize money, Grace said that she would donate part of the money to a charity, probably related to the music industry, and would like to buy a treehouse for herself and her sister. She has a number of pets including two dogs, a cat, and a hedgehog.

Discussion:

1. How do you think Grace Vanderwaal's confidence has affected her life?
2. If she had listened to people who didn't think she could be a successful singer, how do you think her life would be different?
3. Have you ever let someone make you lose your confidence? How did that make you feel? Explain.
4. Have you ever not tried something, because someone made you doubt that you could do it? What was it?
5. Have you ever done anything to make someone lose confidence that you feel bad about? (If you haven't, you can make up a fictional situation.) If you could go back and do things differently, how could you build that person's confidence?
6. Do you think that you have the confidence to do something, even if everyone else thinks that you can't do it? Explain.
7. Will you be you? Do you have confidence? Explain.

As we have read about how confidence is important, let us think about how we lead others to be confident.

List ideas and lead to Activity.

Activity

We will now create a path for others to follow.

Stepping Stone project:

MATERIALS REQUIRED

- An assortment of glass tiles & flattened glass marbles
- Clear vinyl pot saucers
- A bag of cement
- A bucket for mixing cement
- Rubber gloves and some cleaning rags

STEP 1: Scoop several cups of cement into your bucket. Add water and stir. For best results, put on rubber gloves and mix by hand. Keep adding small amounts of water or cement as needed until the cement is the approximate consistency of thick cake batter.

STEP 2: Scoop cement into your clear vinyl pot saucers until 1 cm below the brim.

STEP 3: Have children add tiles & marbles, etc... to decorate. Be sure the items are pressed in firmly with the edges slightly submerged or the items might fall out once the cement is dry.

STEP 4: Once the design is completed, use a damp rag to gently wipe any cement smudges off the tops of the tiles and marbles.

STEP *5*: Allow drying several days, removing from the molds and finding homes for your beautiful stepping-stones in the garden.

Enrichment Day
Bringing it All Together

As we have learned about different character traits that will help us develop a healthy mindset, we have learned about incredible people who have accomplished great goals in their lives.

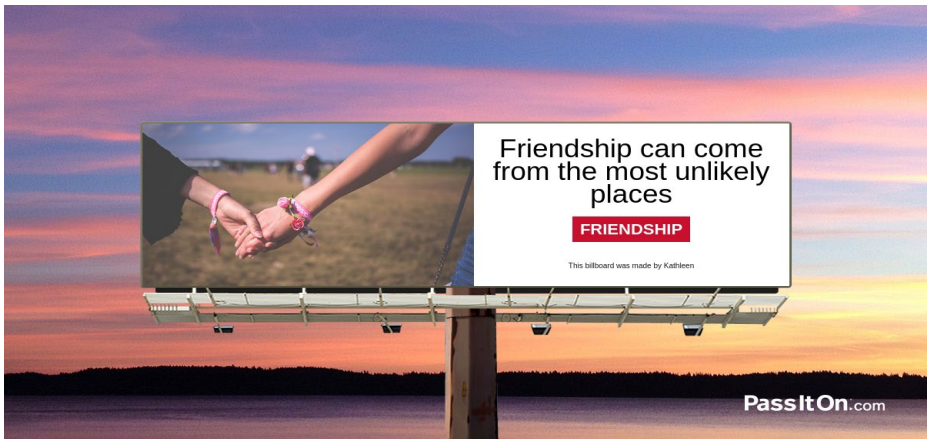
We have analyzed several billboards along with the backstory of the billboards. It is now time for you to create your own billboard that will inspire others. You can choose yourself to be the subject of the billboard or someone else. What message will your billboard convey?

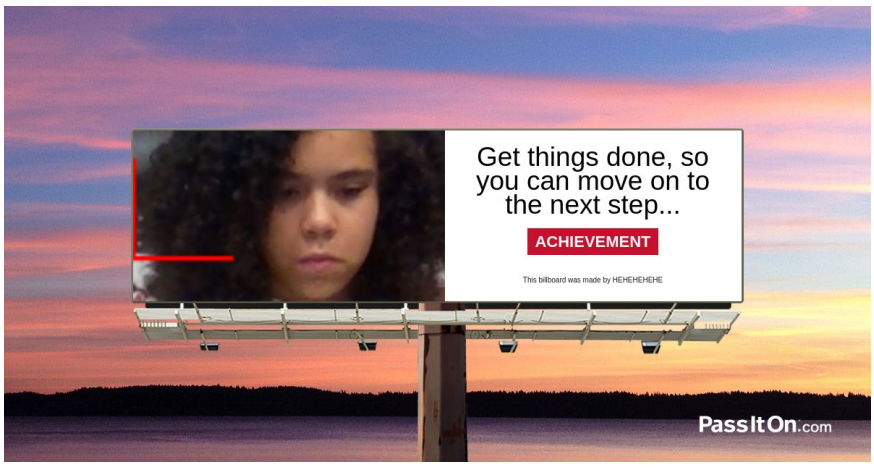
Make Your Own Billboard!

https://www.passiton.com/your-billboards

You may choose to create a billboard more tangible. Give each student a piece of poster board and let them create their own billboard to take with them.

Examples of billboards on the Passiton.com website.





Share billboards with the whole group.

Reflection: Students will review Character traits learned in in this unit. Let them share with a partner what lessons/strategies they can implement in their own lives.

TN Foundational Standards:

Cornerstone: Read closely to determine what a text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

GRADE SPAN	LITERATURE	INFORMATIONAL TEXT
11-12	**11-12.RL.KID.1** Analyze what a text says explicitly and draw inferences; support an interpretation of a text by citing and synthesizing relevant textual evidence from multiple sources.	**11-12.RI.KID.1** Analyze what a text says explicitly and draw inferences; support an interpretation of a text by citing and synthesizing relevant textual evidence from multiple sources.
9-10	**9-10.RL.KID.1** Analyze what a text says explicitly and draw inferences; cite the strongest, most compelling textual evidence to support conclusions.	**9-10.RI.KID.1** Analyze what a text says explicitly and draw inferences; cite the strongest, most compelling textual evidence to support conclusions.
8	**8.RL.KID.1** Analyze what a text says explicitly and draw logical inferences; support an interpretation of a text by citing relevant textual evidence.	**8.RI.KID.1** Analyze what a text says explicitly and draw logical inferences; support an interpretation of a text by citing relevant textual evidence.
7	**7.RL.KID.1** Analyze what a text says explicitly and draw logical inferences; cite several pieces of textual evidence to support conclusions.	**7.RI.KID.1** Analyze what a text says explicitly and draw logical inferences; cite several pieces of textual evidence to support conclusions.
6	**6.RL.KID.1** Analyze what a text says explicitly and draw logical inferences; cite textual evidence to support conclusions.	**6.RI.KID.1** Analyze what a text says explicitly and draw logical inferences; cite textual evidence to support conclusions.
5	**5.RL.KID.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	**5.RI.KID.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
4	**4.RL.KID.1** Refer to details and examples in a text when explaining what the text says explicitly; refer to details and examples in a text when drawing inferences from the text.	**4.RI.KID.1** Refer to details and examples in a text when explaining what the text says explicitly; refer to details and examples in the text when drawing inferences from the text.
3	**3.RL.KID.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as a basis for the answers.	**3.RI.KID.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as a basis for the answers.
2	**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.RI.KID.1** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
1	**1.RL.KID.1** Ask and answer questions about key details in a text.	**1.RI.KID.1** Ask and answer questions about key details in a text.
K	**K.RL.KID.1** With prompting and support, ask and answer questions about key details in a text.	**K.RI.KID.1** With prompting and support, ask and answer questions about key details in a text.

Cornerstone: Prepare for and participate effectively in a range of conversations and collaborations with varied partners, building on others' ideas and expressing one's own ideas clearly and persuasively.		
GRADE SPAN	**STANDARDS**	**LINKING STANDARDS**
11-12	**11-12.SL.CC.1** Initiate and participate effectively with varied partners in a range of collaborative discussions on appropriate 11th - 12th grade topics, texts, and issues, building on others' ideas and expressing one's own ideas clearly and persuasively.	RL.1-7, 9, 10 RI.1-10 W.6
9-10	**9-10.SL.CC.1** Initiate and participate effectively with varied partners in a range of collaborative discussions on appropriate 9th- 10th grade topics, texts, and issues, building on others' ideas and expressing one's own ideas clearly and persuasively.	RL.1-7, 9, 10 RI.1-10, W.6
8	**8.SL.CC.1** Prepare for collaborative discussions on 8th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	RL.1-7, 9, 10 RI.1-10 W.5-6
7	**7.SL.CC.1** Prepare for collaborative discussions on 7th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	RL.1-7, 9, 10 RI.1-10 W.5-6
6	**6.SL.CC.1** Prepare for collaborative discussions on 6th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	RL.1-7, 9, 10 RI.1-10 W.5-6
5	**5.SL.CC.1** Prepare for collaborative discussions on 5th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	FL.F.5 RL.1-7, 9, 10 RI.1-10 W.5-6
4	**4.SL.CC.1** Prepare for collaborative discussions on 4th grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	FL.F.5 RL.1-7, 9, 10 RI.1-10 W.5-6
3	**3.SL.CC.1** Prepare for collaborative discussions on 3rd grade level topics and texts; engage effectively with varied partners, building on others' ideas and expressing one's own ideas clearly.	FL.F.5 RL.1-7, 9, 10 RI.1-10 W.4-6
2	**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.	FL.F.5 RL.1-7, 9, 10 RI.1-10 W.5-8
1	**1.SL.CC.1** Participate with varied peers and adults in collaborative conversations in small or large groups about appropriate 1st grade topics and texts.	FL.F.5 RL.1-7, 9, 10 RI.1-10 W.1-3, 5-8

Math:

K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

1.MD.A.1 Order three objects by length. Compare the lengths of two objects indirectly by using a third object. *For example, to compare indirectly the heights of Bill and Susan: if Bill is taller than mother and mother is taller than Susan, then Bill is taller than Susan.*

1.G.A.1 Distinguish between attributes that define a shape (e.g., number of sides and vertices) versus attributes that do not define the shape (e.g., color, orientation, overall size); build and draw two-dimensional shapes to possess defining attributes.

3.G.A.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category. Recognize rhombuses, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories.

4.MD.A.1 Measure and estimate to determine relative sizes of measurement units within a single system of measurement involving length, liquid volume, and mass/weight of objects using customary and metric units.

5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side that joins two vertices (vertical or horizontal segments only). Know and apply these techniques in the context of solving real-world and mathematical problems.

7.G.B.5 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

8.G.C.7 Know and understand the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

Sources:

- "Welcome" Passiton.com, www.passiton.com
- "Drug and Alcohol Education – Get Informed, Stay Smart, Stay Safe." Positive Vhoices, Netfront, positivechoices.org.au
- "Experiments – Science Toys – Classroom Kits." Steve Spangler Science, www.stevespanglerscience.com
- "Find Curriculum." TeachEngineering, www.teachengineering.org
- Meaningful Mama." Meaningfulmama.com, meaningfulmama.com
- "Home." Little Bins for Little Hands, 17 Nov. 2019, littlebinsforlittlehands.com
- "Home Made Simple." Home Made Simple, www.homemadesimple.com

Unit Supplies:

• notecard per student • Scissors • plastic drinking straws (not the bendy type) • scotch tape • measuring stick or ruler (or one for the class to share) • small paper cups • 200-300 pennies (to use as weight) • Bowl • Spoon • Posterboard	• wooden support structure (or use two desks) • balance (for weighing, or count the pennies instead of weighing) • Clear plastic cups • Food coloring • Paper towels • Saline Solution {for sensitive eyes, store brand and contains both sodium borate and boric acid} • Measuring Cup • Tablespoon	• Water • White Elmer's Washable Glue (PVA Glue) • Foaming Shaving Cream (consider a sensitive skin brand) • Baking Soda • Food Coloring • An assortment of glass tiles & flattened glass marbles • Clear vinyl pot saucers • A bag of cement • A bucket for mixing cement • Rubber gloves and some cleaning rags