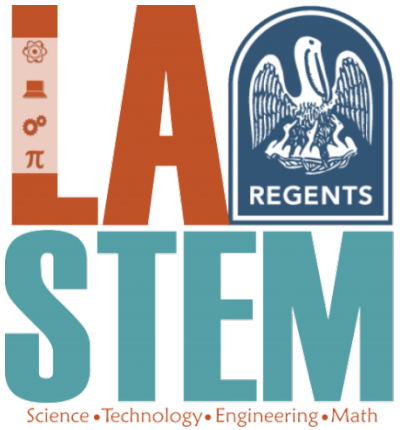


LaSTEM ADVISORY COUNCIL MEETING
NASA Michoud Assembly Facility
Thursday, May 13, 2021

Welcome

Robert Champion, Director

Michoud Assembly Facility

Welcome & Agenda Overview

Dr. Randall Brumfield, Deputy Commissioner for Strategic Planning & Student Success, Board of Regents

A. Roll Call
B. Meeting Minutes Approval
C. New Member Introduction – Jawanda Givens, Director, Workforce Investment Council

Council Discussion

Dr. Kim Hunter Reed, Commissioner of Higher Education, Chair

A. Regional STEM Network Center Report-Out
B. Learning Blade Digital Toolbox
    - Program Overview
    - Educator Access
    - Best Practices

Region 1
Greater New Orleans Development Foundation/GNO, Inc.

STEM Center Points of Contact:

Josh Tatum
Program Manager
Office: 504-527-6963
Cell: 504-913-0385
jtatum@gnoinc.org

Evie Poitevent Sander
Human Capital Manager
Office: 504-527-6981
Cell: 504-342-1716
epoitevent@gnoinc.org

STEM Director Position:

- Offer has been made to top candidate.
- Candidate will join the team mid-June.

- Priority Project #1: Regional Career Exposure
- Priority Project #2: Identifying gaps within the STEM ecosystem
- Priority Project #3: Business & Industry Connections
- Priority Project #4: Regional STEM Brand & Cataloging of Resources/Partners/Programs

Region 2
Capital Area STEM

- Kim Fossey
  - Interim Director, Capital Area STEM @ The LSU Cain Center
  - KimFossey@LSU.Edu CapitalAreaSTEM.org

- Priority Project 1: Systemic PK-12 STEM Integration
  - Comprehensive planning framework and process that will assist districts (or schools) define, align, and grow curricular programming to support STEM learning for ALL students, as well as other resources required to support educators, families, and partners (launched pilot in February)

- Priority Project 2: Access to Resources
  - Online searchable database of STEM opportunities, resources and providers (in progress)

Region 3
Bayou STEM@
Fletcher Technical Community College

Jan Brenan
LaSTEM Region 3, Regional Director

Dr. Clint Coleman
Dean of STEM
Fletcher Technical Community College
LCTCS representative LaSTEM Advisory Council

Bayou STEM Virtual Summer Camps

2020 Covid response continuation

Over 600 participants

Shell and Chevron Sponsored

NASA ASTRO Camp and Energy Venture Camp

Fletcher TECHNICAL COMMUNITY COLLEGE™ 1951-2021

NASA

CENTRAL CREATIVITY

the human energy company™ Chevron

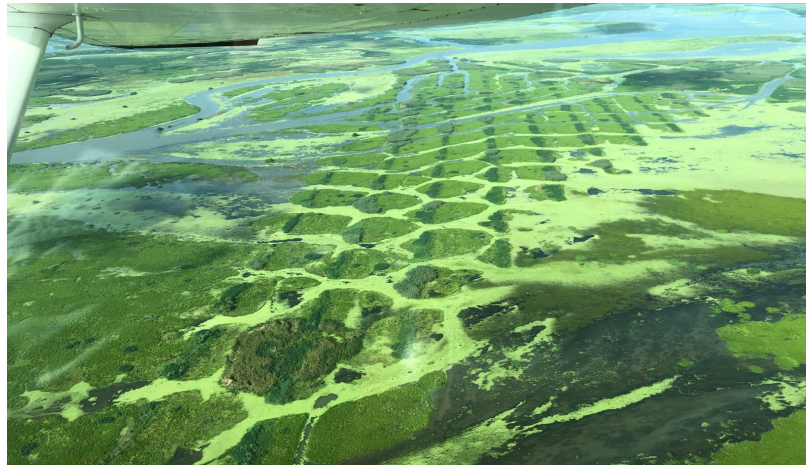
Environmental Series

Collaborations with Fletcher's Institute of Coastal Studies

"In the Field" Teacher Professional Development

360 Interactive video with "Hot Spots"

"Hot Spot" Activity Kits for Students in the Classroom



Region 4
UL Lafayette

- Interim Director/Point of Contact:
  - Dr. Peter Sheppard: psheppard@Louisiana.edu
- Active and engaged partners across multiple sectors:
  - Industry: CGI, One Acadiana, Fenstamaker
  - Philanthropy: Pugh & Schumaker Foundation
  - Community: Children's Museum of Acadiana, Boys & Girls Club
- Robust outreach agenda for summer '21

Region 4 Summer Activities

- Advancing Mathematics & Science Excellence Camp:
  - (CSI Mystery Theme) 100 MS Students
- NASA Astro Camp: 450 K-8 students
- Shell Venture Camp w/Region 3: 100 Middle/High School Students
- Teacher Professional Development
  - 60 Teachers: science, mathematics, diversity, and robotics content
- College Readiness Camp
  - 50 Incoming Freshmen: Critical Concepts for Success in College Algebra, Pre-Calculus, and Calculus (targeted to LPSS GEAR-UP Schools)
- $20K in stipends for STEM Majors (NSF Funded)
- ACT Math Prep (targeted to high minority high schools)

Region 5
Calcasieu Parish School Board (in partnership with McNeese University)

- Mark Arseneault – STEM Center Director
  - STEM summer camps
    - NASA Astro Camp
    - Minecraft
    - Coding
    - Master of Disaster (CPOEP)
  - Voyage Solar System Exhibit
  - SSEP (Student Spaceflight Experiments Program)
  - Hub for Regional Robotics & eSports competitions

We Go!

ASTRO CAMP®
2021

Finding our Place in Space with NASA Science!

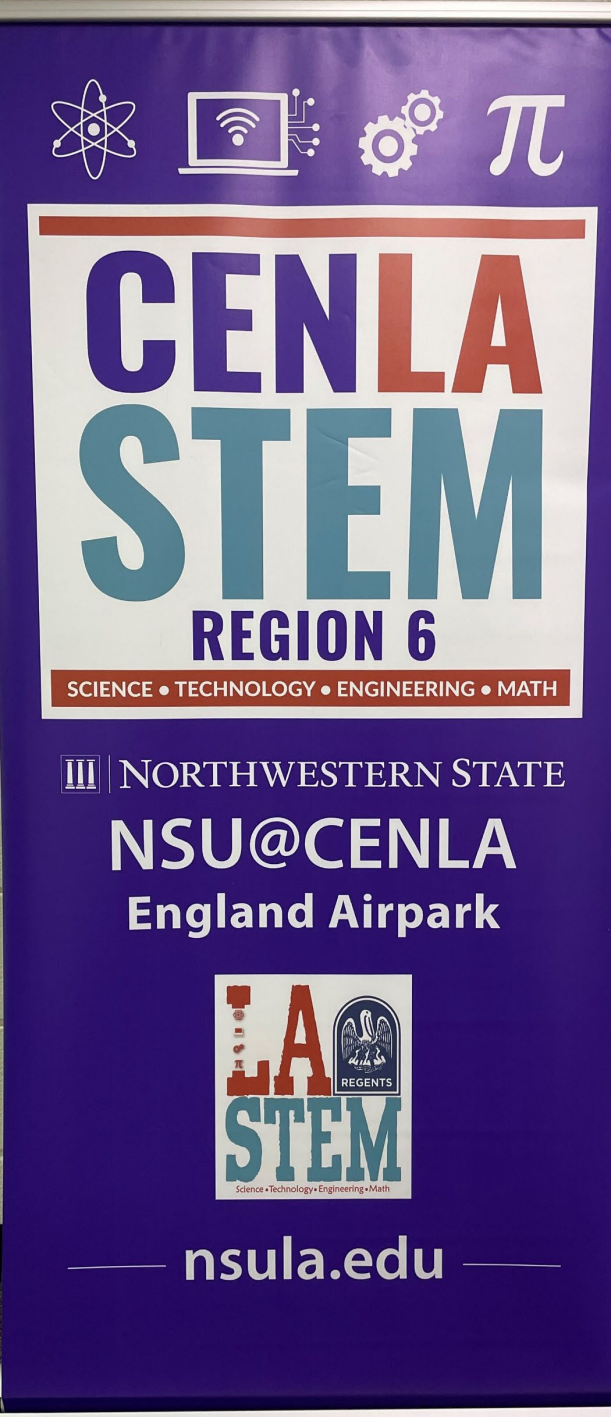

Earth
Asteroid Belt
Saturn
Uranus
Neptune
Entry stanchi
SunMars
Jupiter
Pluto

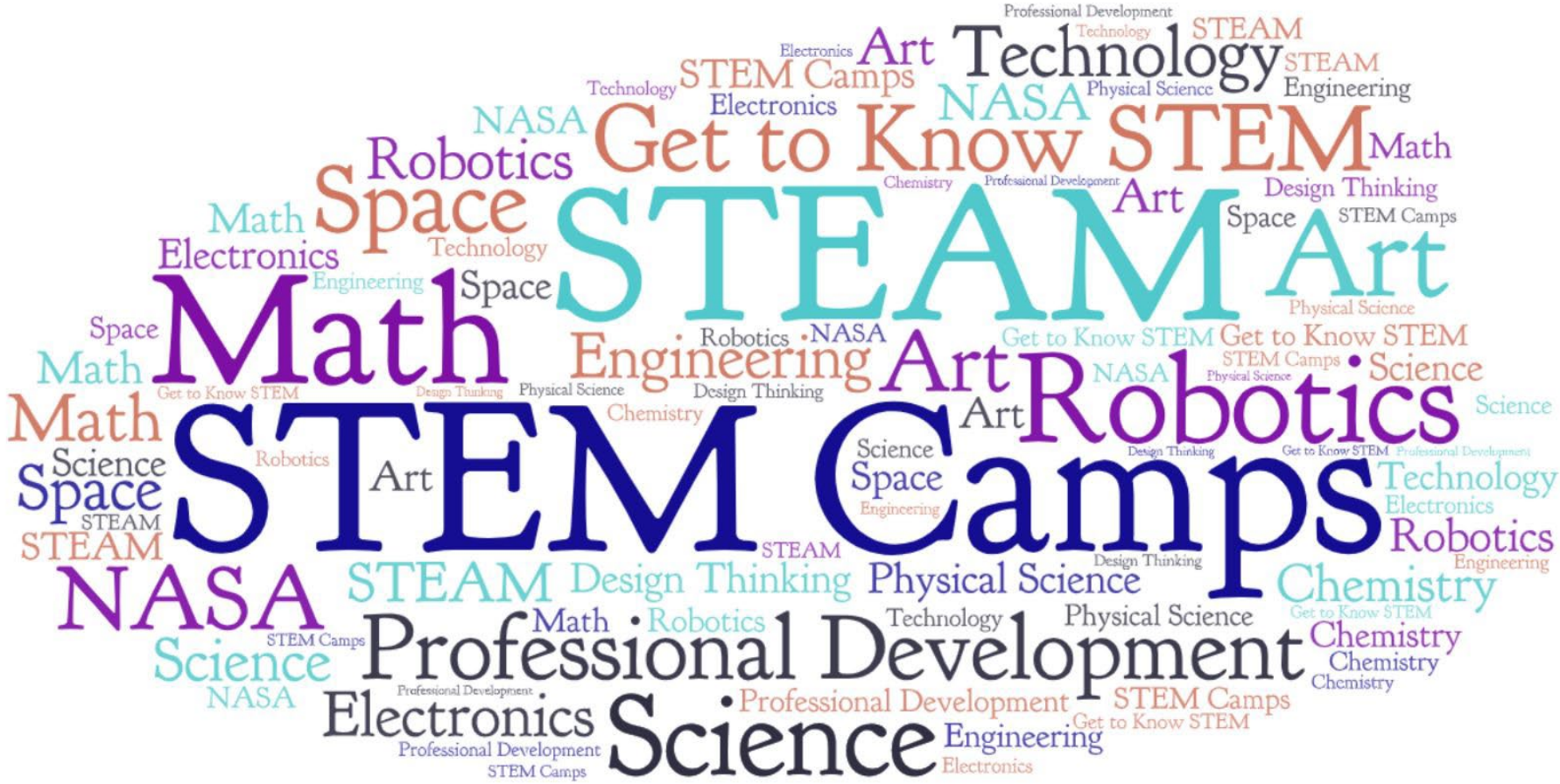

SSEP
Student Spaceflight
Experiments Program


VEX
ROBOTICS
COMPETITION
Code of Conduct
UNLIMITED
POSSIBILITIE
NORTHROP GRUMMAN
Excellence Award
LOUISIANA
STATE
CHAMPIONSHIP

Region 6
Northwestern State University

- Center Director: Ms. Jennifer DePriest – Arrives May 17th
- Region 6 STEM Center - NSU CENLA Instructional Site at England Airpark
- Priority Project 1: Establish the Region 6 STEM Center and Hire a Director
- Priority Project 2: Establish Region 6 STEM Council and Prepare STEM Activities for the Summer – Camps and Professional Development for Teachers


CENLA
STEM
REGION 6
SCIENCE • TECHNOLOGY • ENGINEERING • MATH
NORTHWESTERN STATE
NSU@CENLA
England Airpark
LA STEM
Science • Technology • Engineering • Math
nsula.edu


Professional Development
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STEAM
Electronics
Art
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STEAM
Engineering
Technology
STEM Camps
Physical Science
NASA
Electronics
NASA
Get to Know STEM
Math
Robotics
Chemistry
Professional Development
Art
Design Thinking
Math
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Professional Development
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Engineering
STEM Camps
Science
Electronics

Region 7
NWLA LaSTEM Innovation Center

- Beonica Rutherford-Frazier is the Director.
- Developing a **comprehensive communication system** that will be a tool to promote all things STEM in the region. Working with the NLA STEM Alliance to expand partnerships by building an **asset map** to engage students, families, formal educators, informal educators, business and industry leaders, and government officials in STEM activities.
- The "GamePort" Exhibit will be launching this summer. This is a **STEM-based program** that will include on – and off-site hands-on educational opportunities including, chess tournaments, coding classes, science camps, and monthly Esports tournaments. GamePort is designed to be a fun way to build the computational literacy of people all ages while introducing gaming and programming curriculum.

Building Strong Foundations in STEM

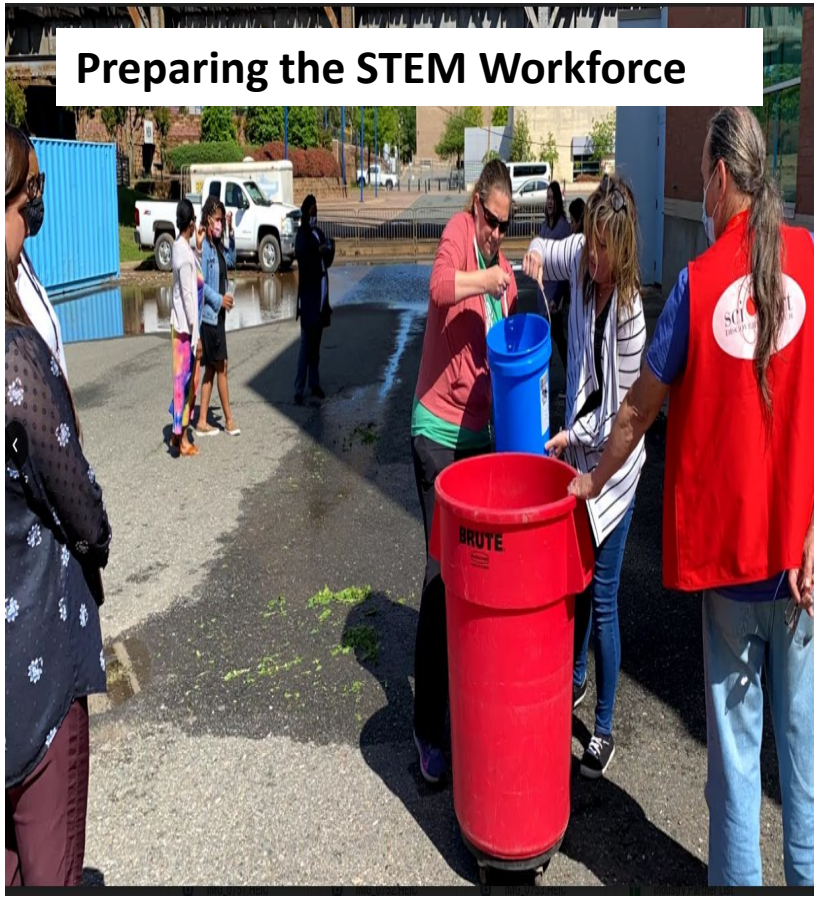
verizon

Be an Engineer Career Panel in a live, virtual format for 8th grade students. Students heard what it is like to be a Data Scientist and Engineer at Verizon.

Increasing Diversity, Equity, and Inclusion

Sci-Port Discovery Center partnered with The Mahogany Ensemble Theater to present interactive talking experiences with historic **Black American scientists** and inventors.

Preparing the STEM Workforce



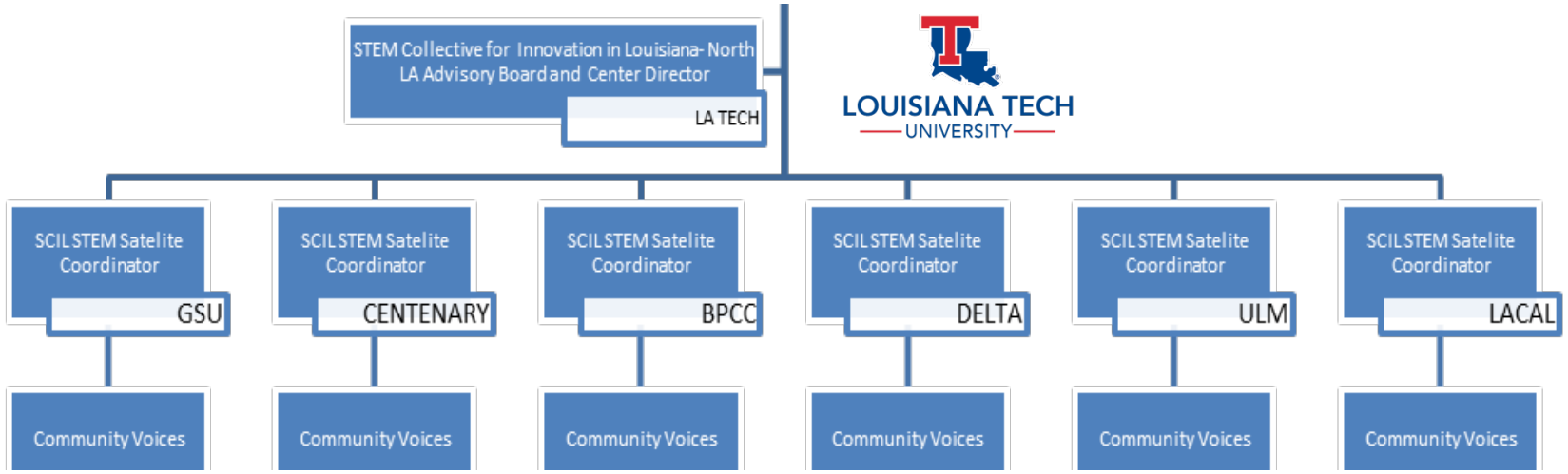
Sci-Port's Watershed to the Red program is an in-depth project-based Environmental Education program in **partnership with Caddo & Bossier Parish Schools** and environmental groups in the community.

Region 8
Louisiana Tech University

SCILS
STEM Collective for Innovative Louisiana Stakeholders

- Cathi Cox-Boniol, Interim Director
- Priority Partners Identified Along the I-20 Corridor
- Funding Allocated to Each Partner for Customized Projects on Individual Sites to Begin This Summer

REGION 8 SCILS SATELLITES



- Centenary College
- Bossier Parish Community College
- Grambling State University
- University of Louisiana at Monroe
- Delta Community College
- Louisiana Center for Afterschool Learning (Virtual)

https://education.latech.edu/scils-center/

Region 9

Southeastern Louisiana University

- ✓ Director: Wendy Conarro, Ed.D. wendy.conarro@selu.edu
  - Hired April 26, 2021
- ✓ Supporting Summer Learning Programs (in progress)
  - Brain Food Truck mobile STEM labs
  - STEM Take Out - Lending Library equip and supplies for districts
  - NASA AstroCamps
  - Launch Louisiana Scholastic Esports Federation (LASEF)
  - Robotify Mars Challenge - May-Sept
  - Back-2-School STEM Fest - August 28
- ❑ Advisory Committee and Strategic Plan (summer)

STEM TAKE OUT

LENDING LIBRARY

STENNIS SPACE CENTER

ASTRO CAMP®

LASEF UP

LOUISIANA SCHOLASTIC ESPORTS FEDERATION

ASPIRE2050

robotify

MARS CHALLENGE

AT&T

SOUTHEASTERN LOUISIANA UNIVERSITY

BACK TO SCHOOL STEM FESTIVAL

Council Discussion

A. Regional STEM Network Center Report-Out ☑
B. Learning Blade Digital Toolbox
    - Program Overview
    - Educator Access
    - Best Practices

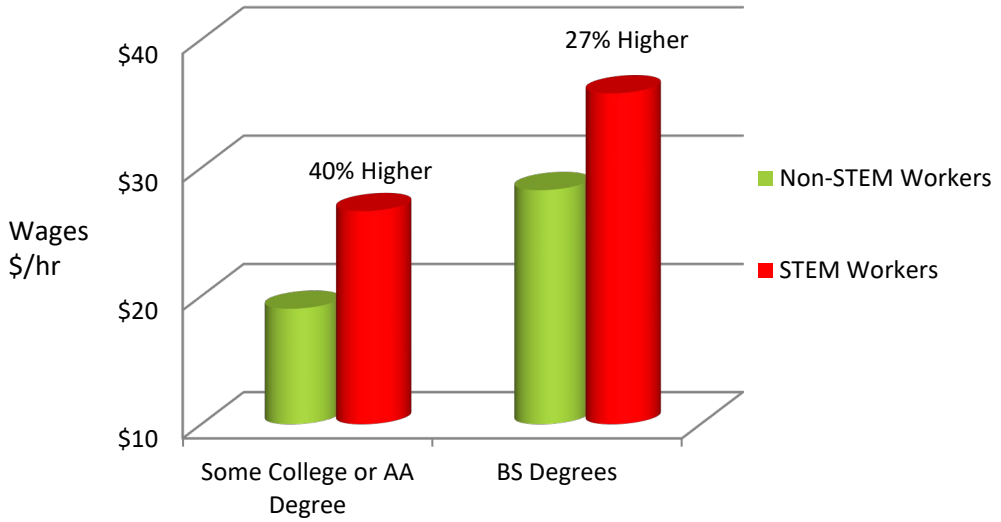
LearningBlade®

Growing interest and sharpening skills for STEM.

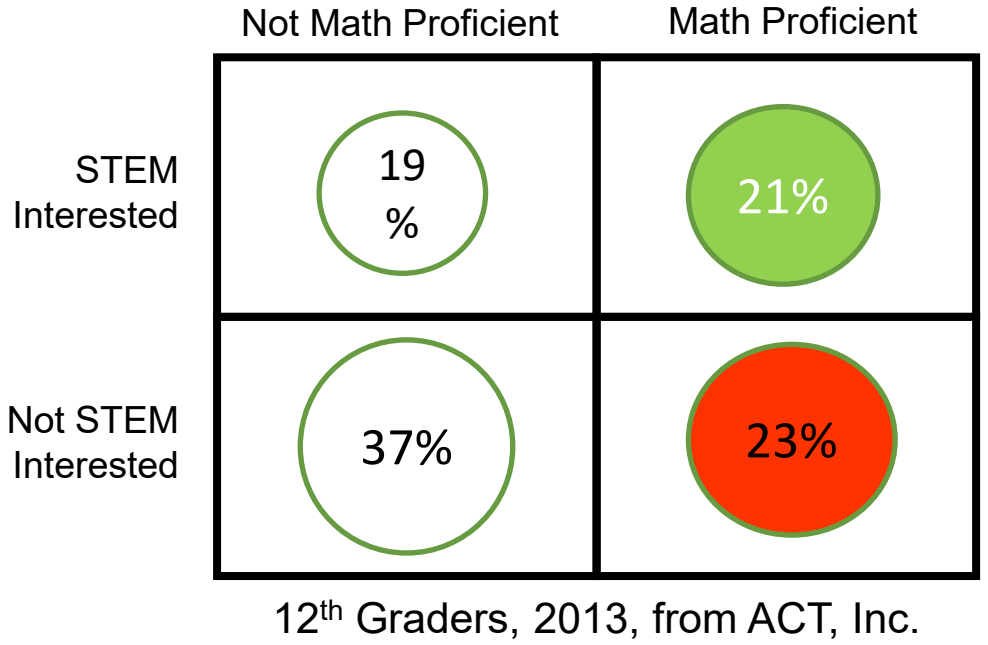
Remote and Distance Learning for STEM/CTE and Computer Science

Sheila C. Boyington, P.E., CEO

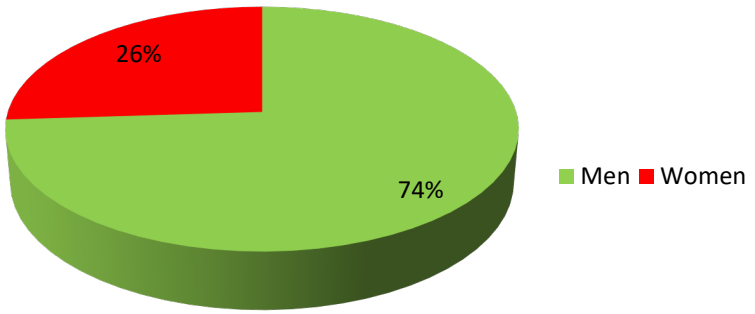
Demand for STEM and computer science workers is growing, but participation by students is lacking.

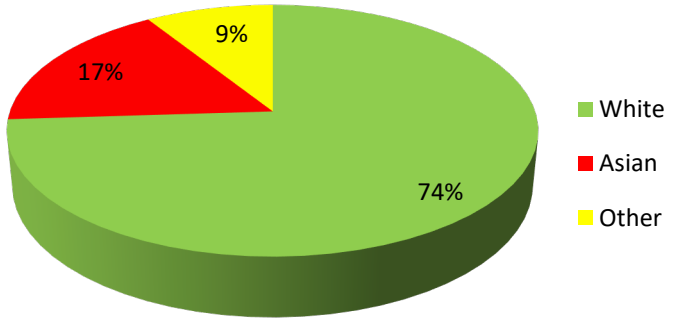


STEM Jobs Pay More at All Levels



23% of Students are Prepared for STEM, but Not Interested





Women and Minorities are Underrepresented in STEM

Students need exposure to STEM careers as early as middle school.

No. 1 Reason Students do not Major in STEM is **Lack of Awareness of Careers**

94% Middle School Students Making **Career-Related Decisions**

"Increasing Student Interest in Science, Technology, Engineering, and Math (STEM)" UMass Donahue Institute Research and Evaluation Group, 2011, as retrieved from http:www.mass.edu/forinstitutions/prek16/documents/Student%20Interest%20Summary%20Report.pdf

We introduce students to STEM and CS careers through “Missions”.

Students

Learning Blade Missions

Teachers

Contextualized Learning
Tailored to the Interests of each Student

Reinforcement of Basic Academics
Indexed by Standards and Providing Resources

Each“Mission” involves a societal challenge that interests students

12

“Missions” that engage all students

Mission	Challenge	Career Clusters
Dolphin Rescue	Help rescue rehabilitate an injured dolphin, including creating an artificial prosthetic tail	Biomedicine, Marine Science
Haiti Orphanage	Design and build an environmentally-sound orphanage for children left homeless by an earthquake in Haiti	Construction, Sustainability
Heart Surgery	Conduct heart surgery and therapy for a child with a heart defect; evaluate the use of artificial hearts or heart components	Medicine
Energy Production	Evaluate alternative or upgraded energy sources for a city that currently has an old coal-fired power plant	Energy Production, Environment
Local Food	Consider methods to increase production of local foods in a community	Agriculture
Robotics Design	Explore technology used for robotics design, such as sensors, electrical circuits, industrial design and computers	Electronics, Computer Science
Flu Outbreak	How health and IT professionals can use data warehousing and analysis to predict flu outbreaks using GIS and social media data	Information Technology
Transportation Jam	Evaluate new transportation methods for a city that has a traffic congestion problem	Transportation
Manufacturing Concept	Use modern manufacturing techniques to design and build a new concept car	Advanced Manufacturing
Entrepreneurship	Set up a new business with a focus on entrepreneurship	Finance, Business
Lightweight Aircraft	Design a lightweight and easily maintained aircraft for distant missions	Lightweight Metals Manufacturing
Hack Attack	Learn about methods to create and protect website, apps and social media after a school’s website and media are hacked	Computer Science

Each Mission includes an interactive toolbox of lessons and activities.

Interactive online lessons, ready-to-use lesson plans and activities for middle and high school students. Can be used by any teacher, anywhere. Validated and proven to increase STEM career interest.

Interactive Lessons

Over 400 online lessons tied to academic standards

Challenge Projects

Hands-on, project-based lessons using common materials

Design Thinking

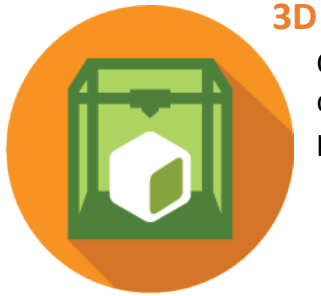
Solve complex problems with the 5-step creative thinking process

Parent Discussions

Handouts and easy experiments for at-home discussions

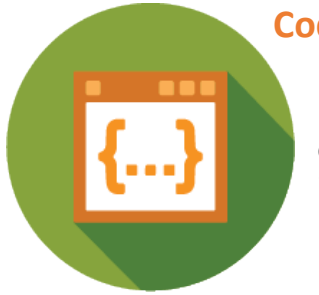
Career Videos

Introduce over 50 careers with real-life people



3D Printing Activities

Create objects that demonstrate science principles



Coding Activities

Demonstrate coding principles on and offline, including Code.Org

Papercraft Figures

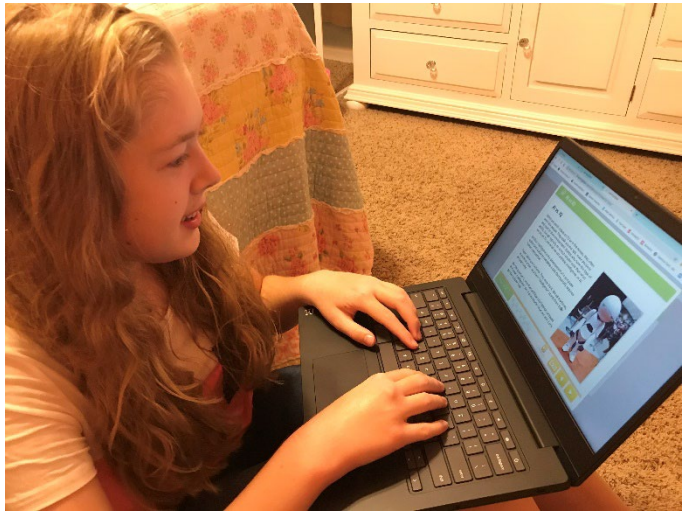
Students origami-type figures of 100 careers and technologies

Bridging the Digital Divide - Connecting All Students

NEW!!! - Learning Blade Backpack:

An innovative support for navigating remote instruction without universal Internet access

- Offline Access to Learning Blade's Lessons
- Available for Chromebooks in the Google Play store
- Learn more at **www.learningblade.com/Backpack**



Learning Blade®
BACKPACK

***Only 30 percent of teachers in high-poverty schools reported most students had access to the Internet at home**

*https://www.rand.org/pubs/research_reports/RRA134-3.html

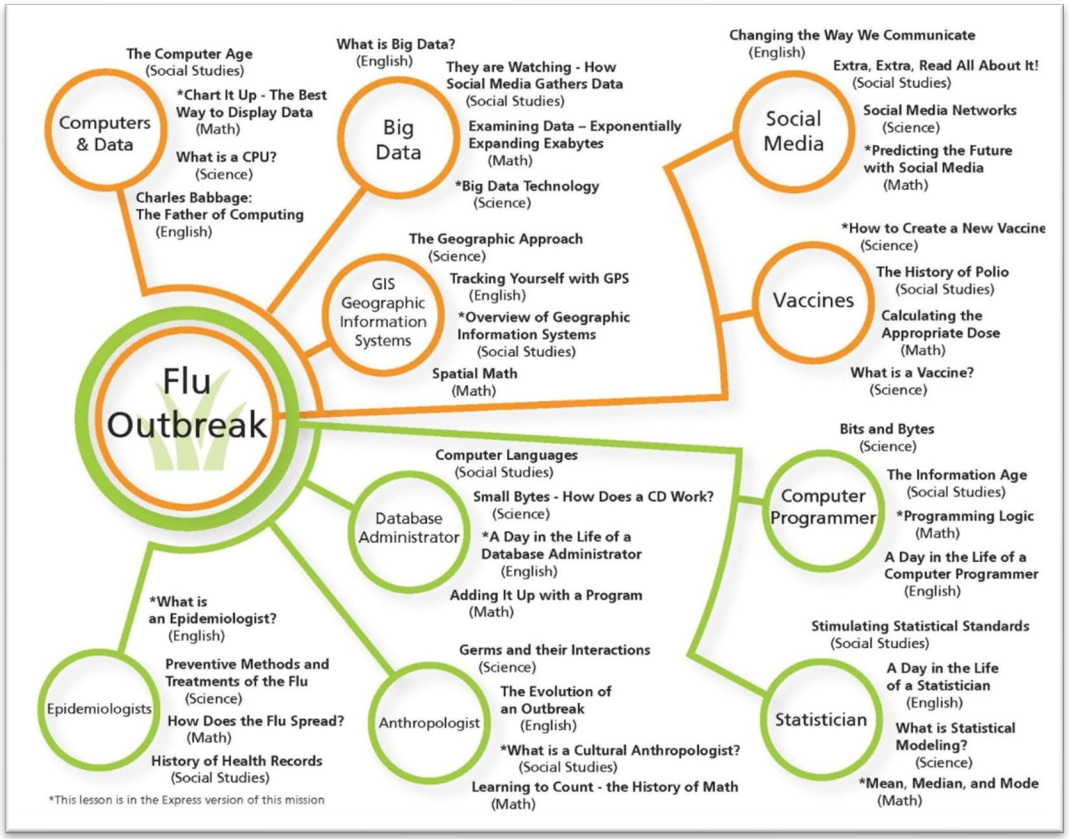
Learning Blade is a supplemental system that engages underrepresented students and supports academics in grades 5-9.

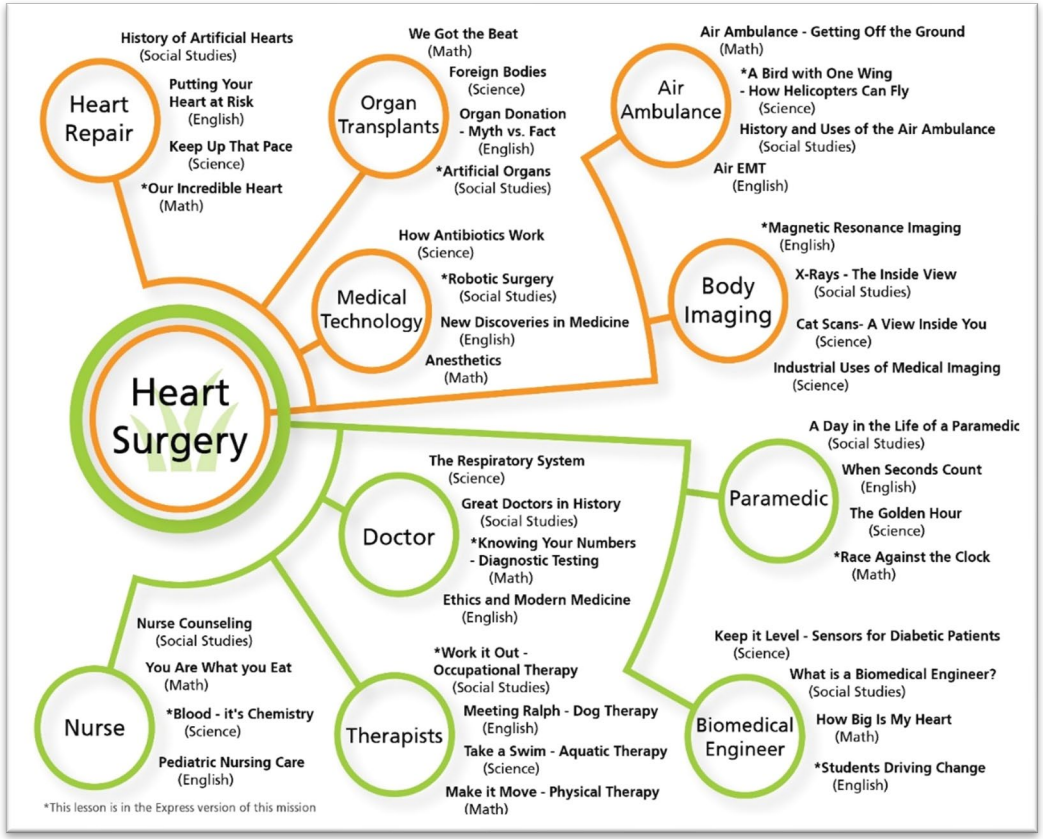
- Introduces students to a wide range of STEM technologies and careers and **engages students** through an online, game-based platform
- **Easily accessible via the Internet** and teachers can make remote assignments
- Provides additional downloadable resources linked to **coding, design thinking, 3D printing** that can be used at home
- Motivates **minorities, girls, rural and urban students** to explore STEM and Computer Science fields
- Addresses **many academic subjects**, not just science
- Analyzes student skills according to the **academic state standards** to continue reviewing of these.
- **5-9 Grade Materials –**more than 200 hours of curriculum that can be used in Middle and High schools (online and lesson plans)

Thinking Media brings strong experience in similar education solutions.

- Tennessee-based WBE, MBE and Small Business of the Year for Chattanooga
- Creators of KeyTrain® and Career Ready 101® for ACT WorkKeys®, acquired by ACT
  - Online basic skills enhancement curriculum
  - Helped to create the National Career Readiness Certificate
  - Used in approx. 15% of US high schools and in other agencies
  - Managed 28 statewide contracts with over 4 million registered users
  - Delivered 7.2 million lessons and 2.4 million hours used per year
  - Statistically proven effective at raising basic skills test scores

LB contains over 100 careers and technologies, 400 lessons in the specific contexts of science, math, English and social studies.



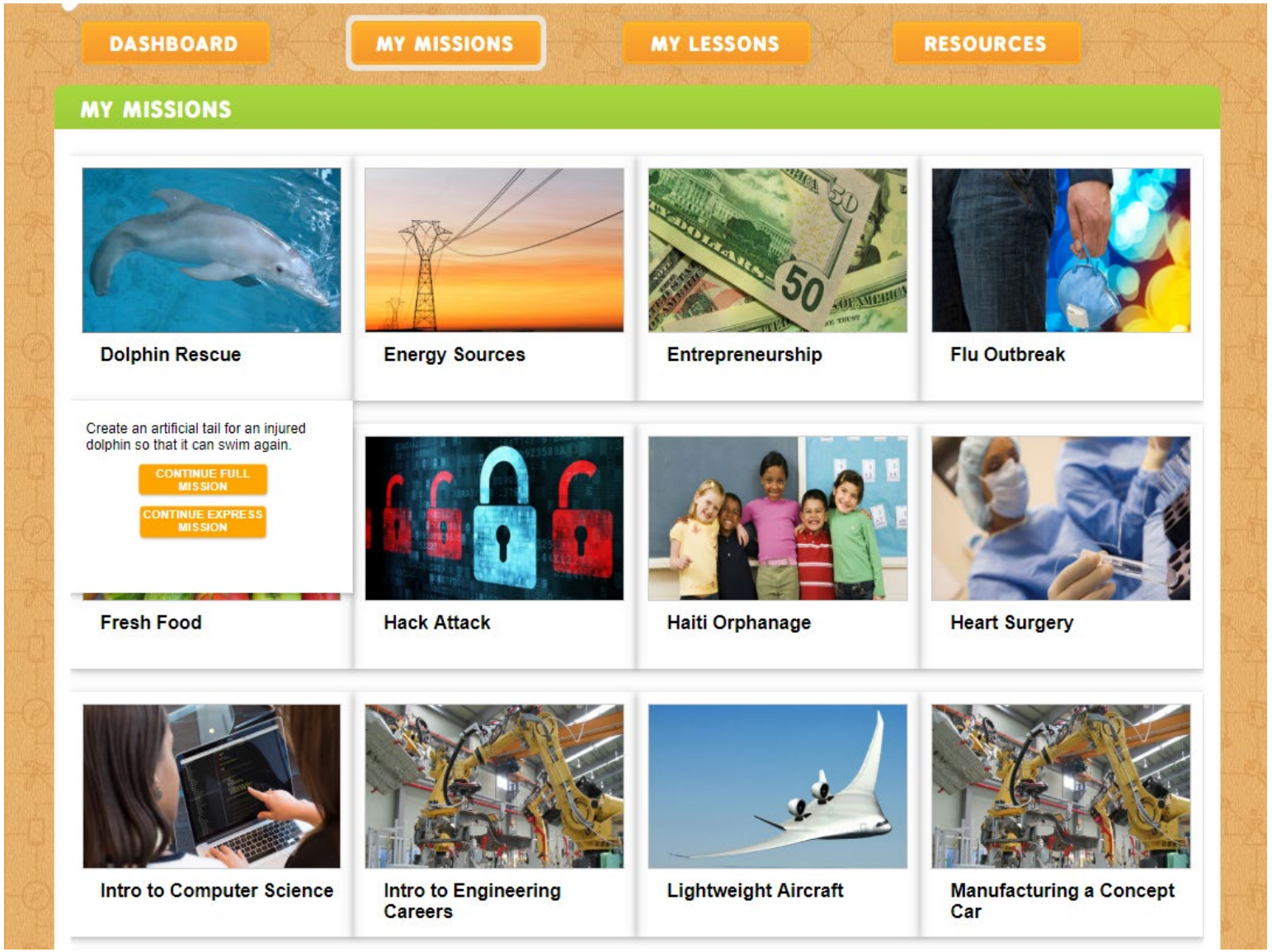


Tools

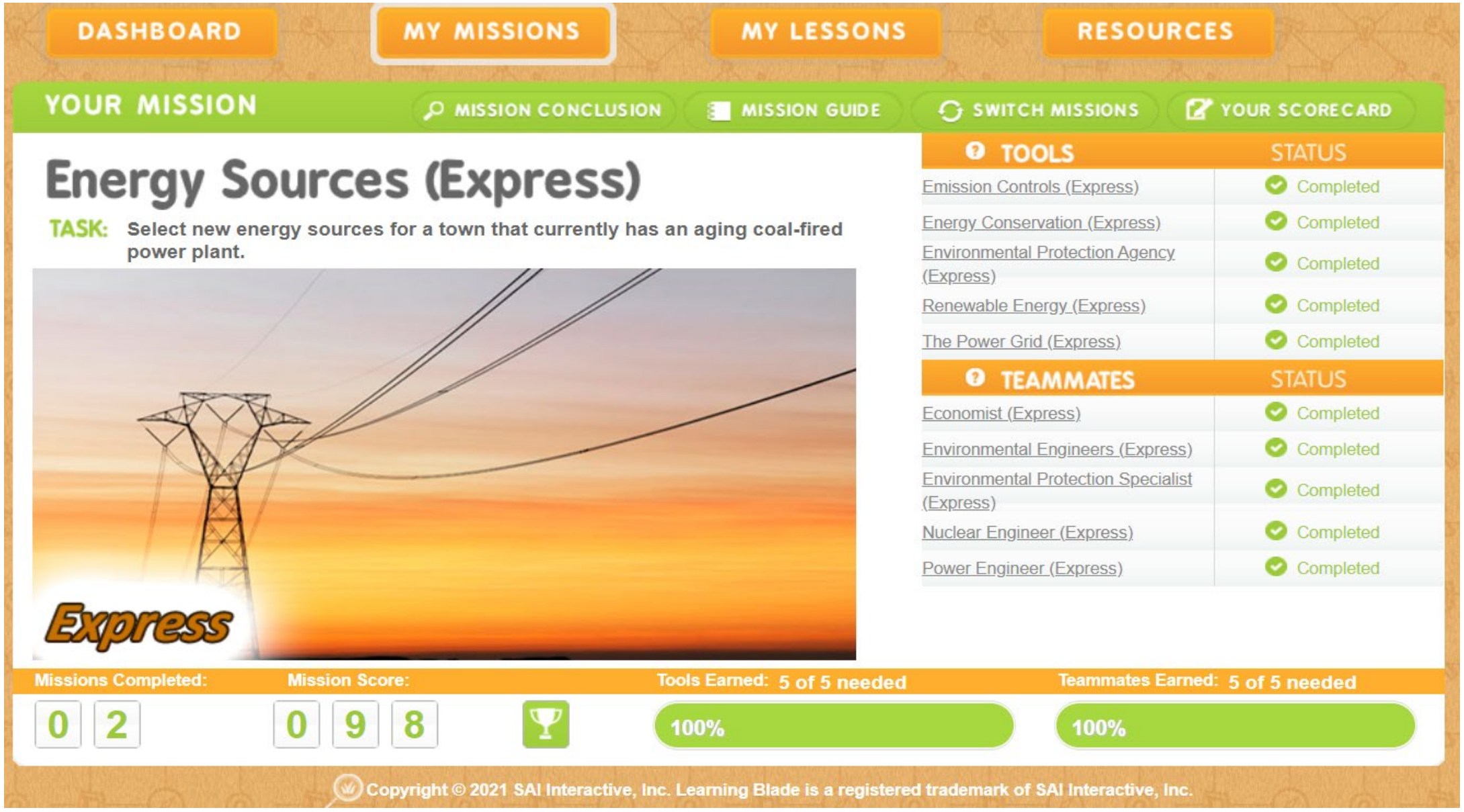
Teammates

Sample mission outlines showing Science, Math, English and Social Studies lessons for each career and technology

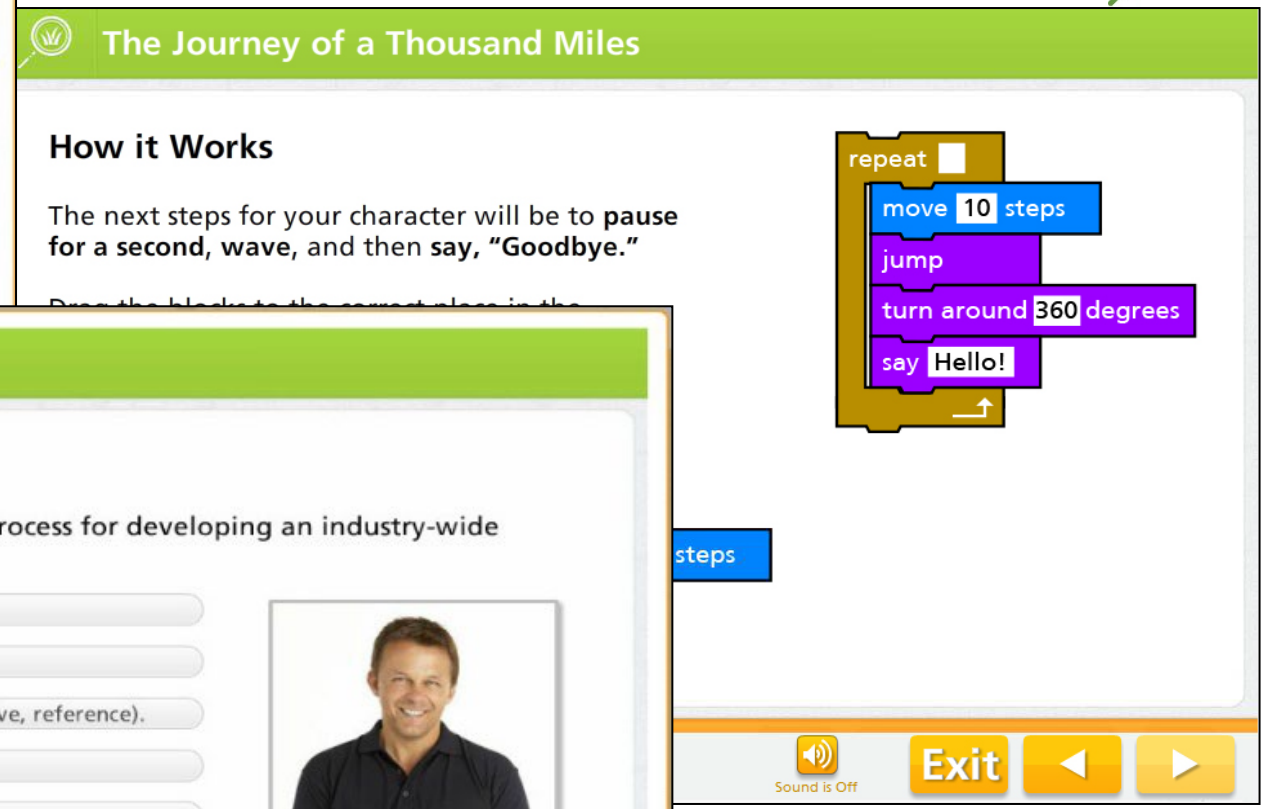
Students Can select a Mission, or teachers can assign specific Missions.

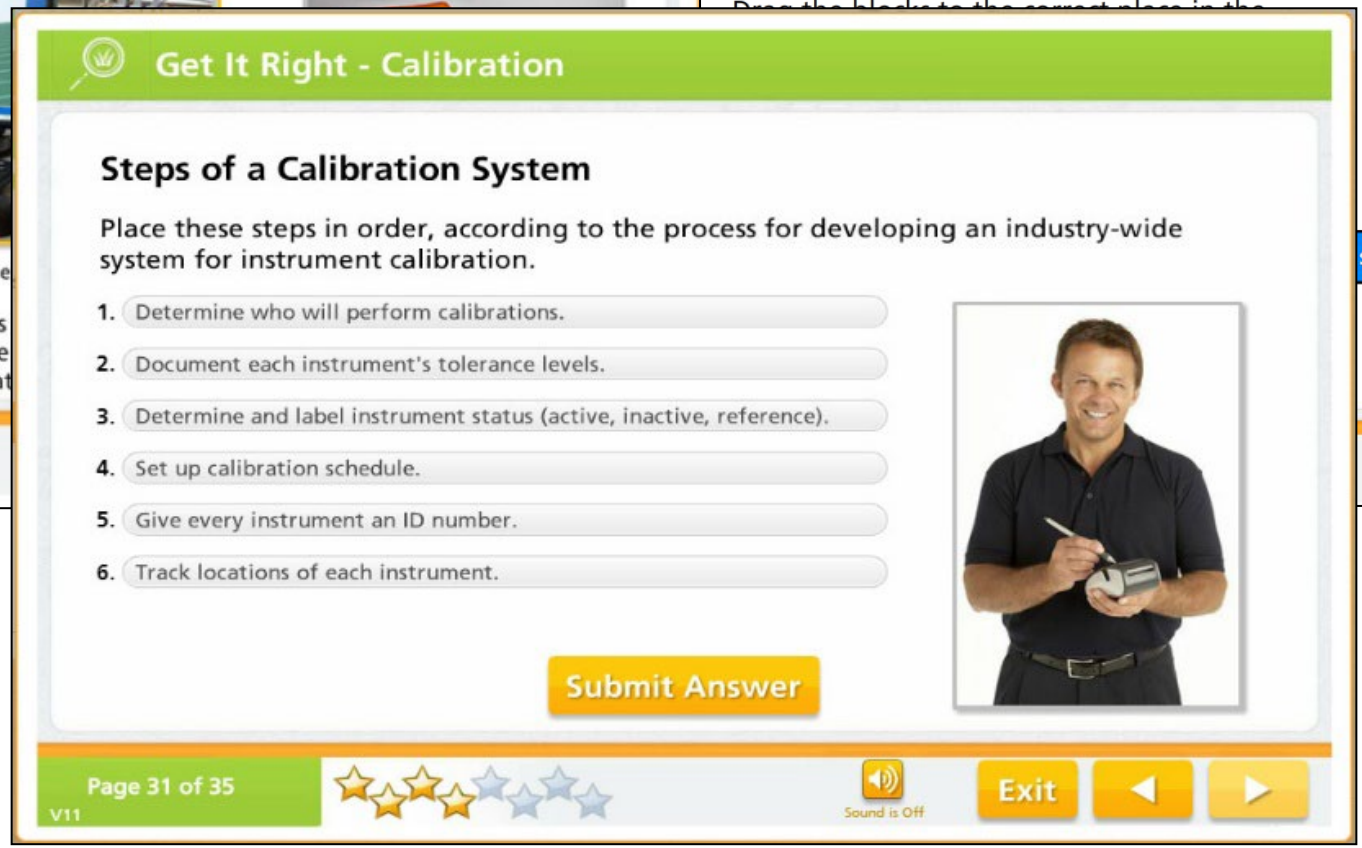


Students operate missions from a mission dashboard.



LB interactive lessons introduce careers while reviewing academics.





Mission Challenges include experiments, projects and presentations.

Mission Challenges

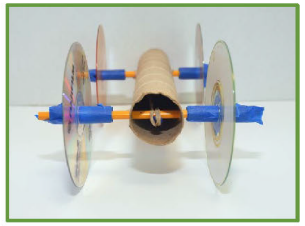
Each lesson includes:

- Writing prompt
- Presentation prompt
- Manipulatives using common household or classroom materials

LearningBlade®

CAR MANUFACTURING MISSION CHALLENGE

Design a Rubber Band Car



Objective

To construct a rubber band-powered car using common household items

Description

Students will design and construct a rubber-band-propelled car. The cars will be measured on various criteria.

Materials

Almost any common household items can be used as materials. The design of the rubber band car may be dictated by the availability of materials. Students' cars may function radically different from one another.

- Basics tools like a ruler, a hole punch, thumb tacks, tape, or glue
- 2 unsharpened pencils or some other long, round objects suitable for axels
- 2 rubber bands (these will be the power source)
- Cardboard, paper towel tubes, craft sticks, or some other materials suitable for a car frame/ body
- paper clip
- CDs, small plastic lids, cardboard cut into circles, or some other materials suitable for wheels
- Stopwatch

How to Begin

This exercise is intended to rely on the students' own innovation and creativity to construct the car. There are numerous examples online that students may use, or they may choose to rely on their own engineering skills. There is no "right" way to build a car for this exercise. Students should be reminded that cars are designed to meet certain needs, and may not excel in all performance measures.

After the cars have been constructed, the teacher will hold a competition to measure each car in as many of the following ways as possible:

- Overall mass
- Overall size
- Maximum average speed
- Maximum travel distance
- Load capacity
- Clearance over obstacles
- Trueness/ straightness of handling

Discussion Questions

After each car has been objectively measured, have the students discuss the following questions:

- How do the measurements used to evaluate the model cars compare to real world measurements of actual vehicles?
- Which cars performed in surprising ways? What design elements likely led to that performance?
- What important car characteristics are difficult to measure?
- How could a car be considered "good" or "effective" if it didn't score well in the measurements used in this experiment?

LearningBlade®

CAR MANUFACTURING MISSION CHALLENGE

Evaluating a Racecourse

Objective

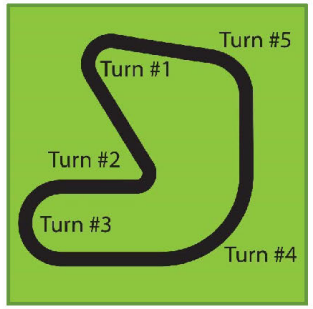
To understand the equations for uniform circular motion, and how they apply to real world scenarios

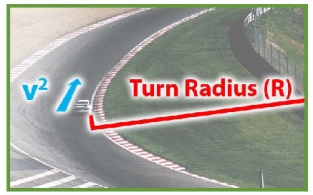
Description

Students will imagine they are designing a new racetrack, and calculate the curvature of a turn given the projected speed and friction force of a car's tires.

How to Begin

The uniform circular motion equations help us understand how object behave when going around turns. The first equation we'll use is: $\mathbf{a = v^2 / R}$. This will tell us the acceleration of an object as it moves around a circle.
The second equation is: $\mathbf{F = m \cdot a}$. This tells us the force acting on an object as it moves through the curve.
Students will imagine they are helping design a new race track. You will evaluate several turns on the track. Use the uniform circular motion equations above to answer the questions about the turns.





Turn #1 – How Much Force?

Turn #1 is a turn around a corner with a radius of 25 meters. If a 900-kg car moving at 10 m/s drives through this turn, what is the acceleration and the force acting upon the car?
The first step is to determine the circular acceleration of the car as it goes around the turn.
We use the equation: $\mathbf{a = v^2 / R}$, and use the information give to solve for the acceleration.

$$a = v^2 / R$$
$$a = (10\ m/s)^2 / (25\ m)$$
$$a = (100\ m^2/s^2) / (25\ m)$$
$$a = 4\ m/s^2$$

Now, we need to determine the force acting on the car as it goes through the turn.
To find this, we'll use the equation: $\mathbf{F = m \cdot a}$

$$F = (900\ kg) \bullet (4\ m/s^2)$$
$$F = 3600\ N$$

This shows, that as the 900 kg car goes through Turn #1 at 10 meters per second, it accelerates 4 meters per second, every second, and as it does this, the tires must grip the road with at least 3600 Newtons of force to stay on the track.

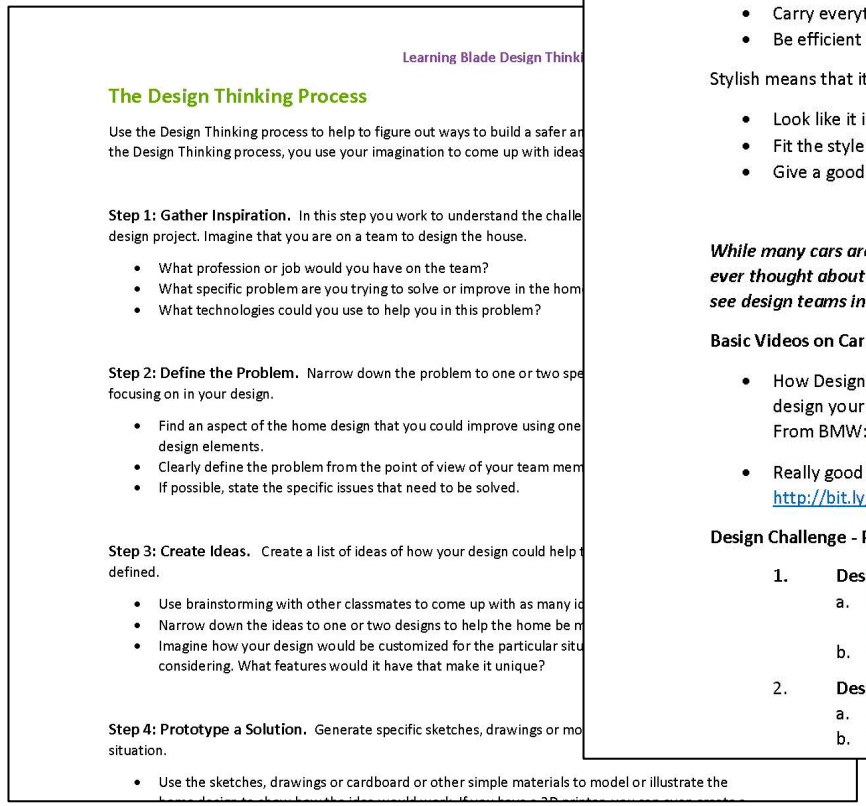
Design Thinking lessons let students create a solution to the Mission.

Design Thinking

New Design Thinking lessons encourage students to explore their own solutions to the problems related to each the mission, and to present their ideas in front of other students.

Each lesson includes:

- Background research information
- Suggestions for problem statements
- Five-step design thinking process guides
- Standards alignment
- Teacher rubric



Learning Blade Design Thinki

The Design Thinking Process

Use the Design Thinking process to help to figure out ways to build a safer ar
the Design Thinking process, you use your imagination to come up with ideas

Step 1: Gather Inspiration. In this step you work to understand the challe
design project. Imagine that you are on a team to design the house.

- What profession or job would you have on the team?
- What specific problem are you trying to solve or improve in the hom
- What technologies could you use to help you in this problem?

Step 2: Define the Problem. Narrow down the problem to one or two spe
focusing on in your design.

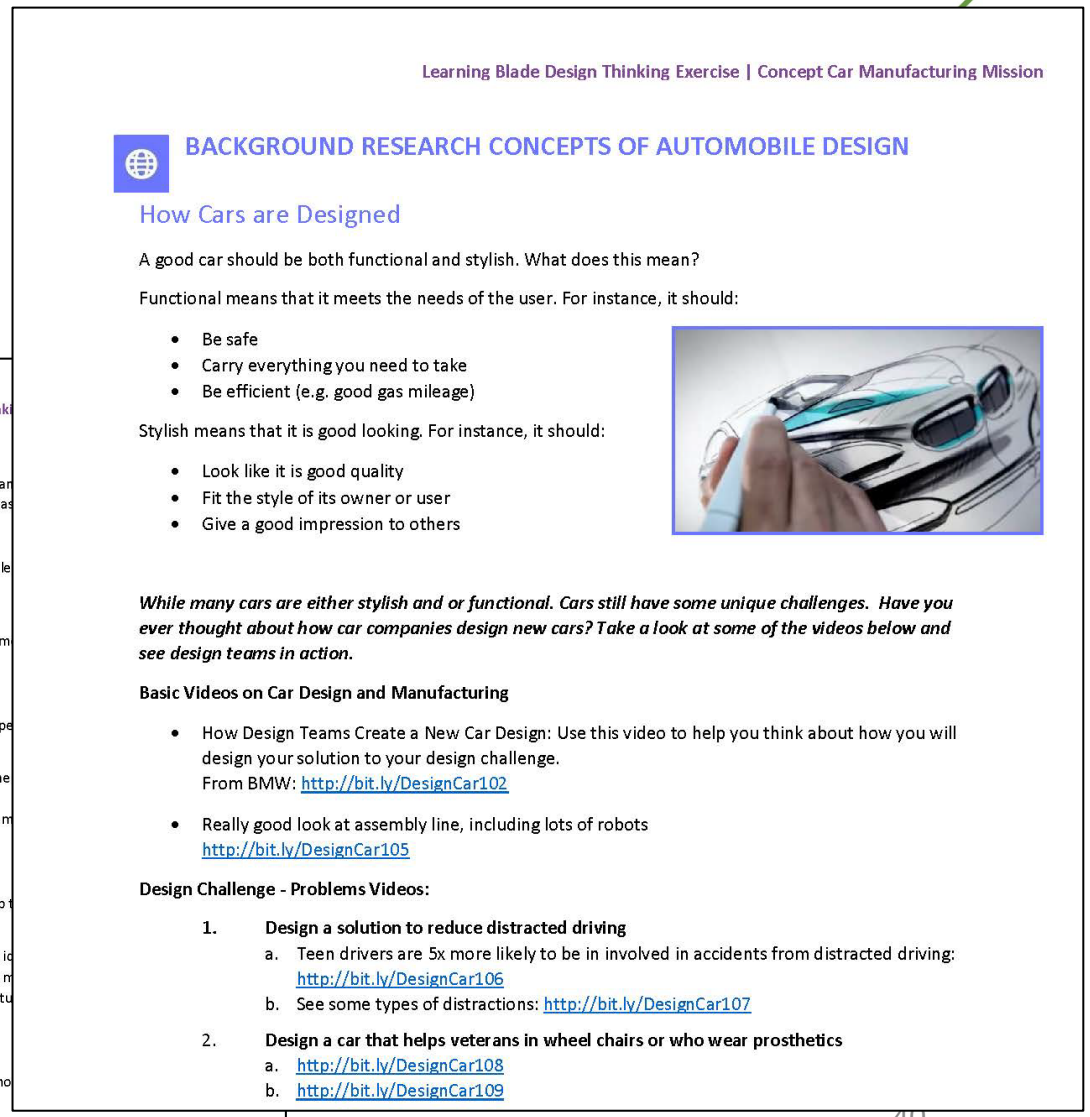
- Find an aspect of the home design that you could improve using one
design elements.
- Clearly define the problem from the point of view of your team mem
- If possible, state the specific issues that need to be solved.

Step 3: Create Ideas. Create a list of ideas of how your design could help t
defined.

- Use brainstorming with other classmates to come up with as many id
- Narrow down the ideas to one or two designs to help the home be m
- Imagine how your design would be customized for the particular situ
considering. What features would it have that make it unique?

Step 4: Prototype a Solution. Generate specific sketches, drawings or mo
situation.

- Use the sketches, drawings or cardboard or other simple materials to model or illustrate the



Learning Blade Design Thinking Exercise | Concept Car Manufacturing Mission

BACKGROUND RESEARCH CONCEPTS OF AUTOMOBILE DESIGN

How Cars are Designed

A good car should be both functional and stylish. What does this mean?

Functional means that it meets the needs of the user. For instance, it should:

- Be safe
- Carry everything you need to take
- Be efficient (e.g. good gas mileage)

Stylish means that it is good looking. For instance, it should:

- Look like it is good quality
- Fit the style of its owner or user
- Give a good impression to others

While many cars are either stylish and or functional. Cars still have some unique challenges. Have you ever thought about how car companies design new cars? Take a look at some of the videos below and see design teams in action.

Basic Videos on Car Design and Manufacturing

- How Design Teams Create a New Car Design: Use this video to help you think about how you will design your solution to your design challenge.
From BMW: http://bit.ly/DesignCar102
- Really good look at assembly line, including lots of robots
http://bit.ly/DesignCar105

Design Challenge - Problems Videos:

1. **Design a solution to reduce distracted driving**
   a. Teen drivers are 5x more likely to be in involved in accidents from distracted driving: http://bit.ly/DesignCar106
   b. See some types of distractions: http://bit.ly/DesignCar107
2. **Design a car that helps veterans in wheel chairs or who wear prosthetics**
   a. http://bit.ly/DesignCar108
   b. http://bit.ly/DesignCar109

40

3D Printing lessons let students design objects and then do experiments.

3D Printing projects

Each lesson includes:

- Downloadable 3D design models
- Ability to modify the model online
- Instructions for activities that use the object after printing to illustrate science concepts

MAKER QUEST

LearningBlade® - MAKER QUESTS

Model Car Prototyping

QUEST OBJECTIVES

To practice 3D printing and testing procedures used in automotive design prototyping

QUEST SITUATION

Have you ever wondered how automobiles are created? Taking a new automobile from concept to reality involves a long series of steps. At each step, automotive engineers and designers must test and evaluate their work to make sure the automobile will perform the way it's designed. A major tool is this evaluation is Prototyping.

Prototyping involves making a digital or physical model of a product, so that it can studied before the product goes into production. Most Prototypes are not the same size as the final version of the product. Instead, smaller, scaled-down models are produced, because scale models are faster and easier to produce, while still providing an opportunity to test the product's design.

Before the computer revolution of the 1980s, prototypes were made by hand, and were a tedious, time-consuming process. 3D printing has revolutionized prototyping, allowing modern engineers to create prototypes at the push of a button.

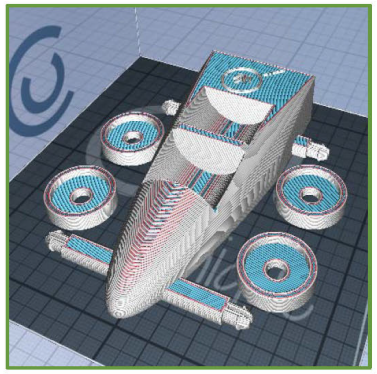
In this Maker Quest, you're going to take the place of an automotive designer creating and testing a simple automobile prototype. You'll download the prototype's 3D model, print and assemble the pieces, and then conduct some simple tests of the prototype.

MATERIALS

A 3D printer with PLA, or another printer-compatible filament
The 3D model files for this Maker Quest
3D slicing software
4 – 1" small finishing nails per prototype (wheel axles)
Several washers (for weight)
A simple ramp, at least 1 meter long
A tape measure
A stopwatch
A scale

QUEST PROCEDURE

Read to students, or have them read, the Quest Situation section before beginning. Review the Materials list and make sure students have access to the required materials.



Download the 3D Prototype Files

Digital files for this Maker Quest have been prepared, and may be downloaded at: http://www.thingiverse.com/thing:1954693. Students should identify the files for this Quest and download those files to their computer hard drive.

Prototype Scaling

Once the files are downloaded, students should import them into the 3D slicing software and set the prototype scale. The 3D prototype model is designed as an approximately 1:15 scale model of a 4000mm long, full-sized car. Depending on the size of the 3D printer, students may need to adjust the scale of the model. Any adjustment to the model's scale will need to be recorded and accounted for during testing.

Prototype Assembly

Once the printing is complete, students will need to carefully remove the pieces from the printing surface and separate and loose filament and printed flashing from them. The finishing nails should be pushed through the center of the wheels, into the holes in the side of the car. The plastic studs should be inserted into the two holes in the front and back of the model. The washers can be placed on these studs to adjust the weight of the car for testing.

Testing the Prototype

Setup the board as a ramp, placing one end of the board on a smooth floor, and several books under the other end. For the first experiment, create a ramp that's at least 4 inches high. Have the students measure the height and length of the ramp, and use the measurements to record the slope.

Attach the washers to the car. Have the students measure the weights of each car and record them on the included worksheet. Use the scale to record the mass of the prototype.

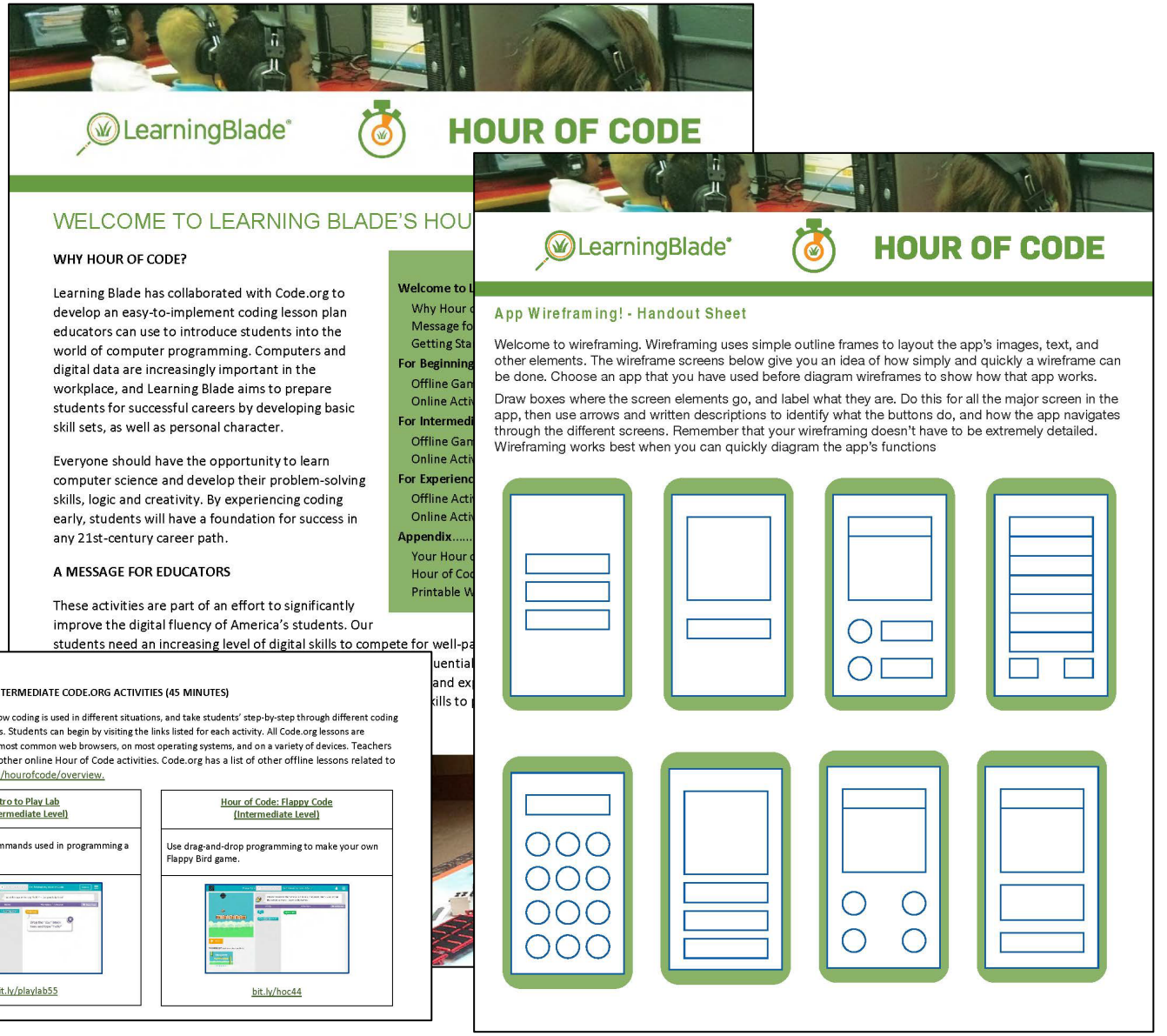
Observations 1

Now determine the average speed each car travels down the ramp. Place a car on the top of the ramp as shown in Figure 3. Get the stopwatch ready, and start the timer as you let go of the car. When the car has stopped rolling across the floor as shown in Figure 4, stop the timer and record the length of time the car was in motion. Measure the distance the base of the ramp to the back of the car. Add this measurement to the length of the board and enter it on the included worksheet.

Coding - Hour of Code Plans

These lesson plans combine offline, interactive classroom activities with suggested online lessons from Code.org's Hour of Code to help students of all ages understand the basic principles of computer science. This is available on the teacher's resources page in Learning Blade and makes it easy for any teacher to participate in computer science instruction.

- Offline, interactive lessons
- Instructions for specific online Code.org lessons
- Suggestions for different experience levels

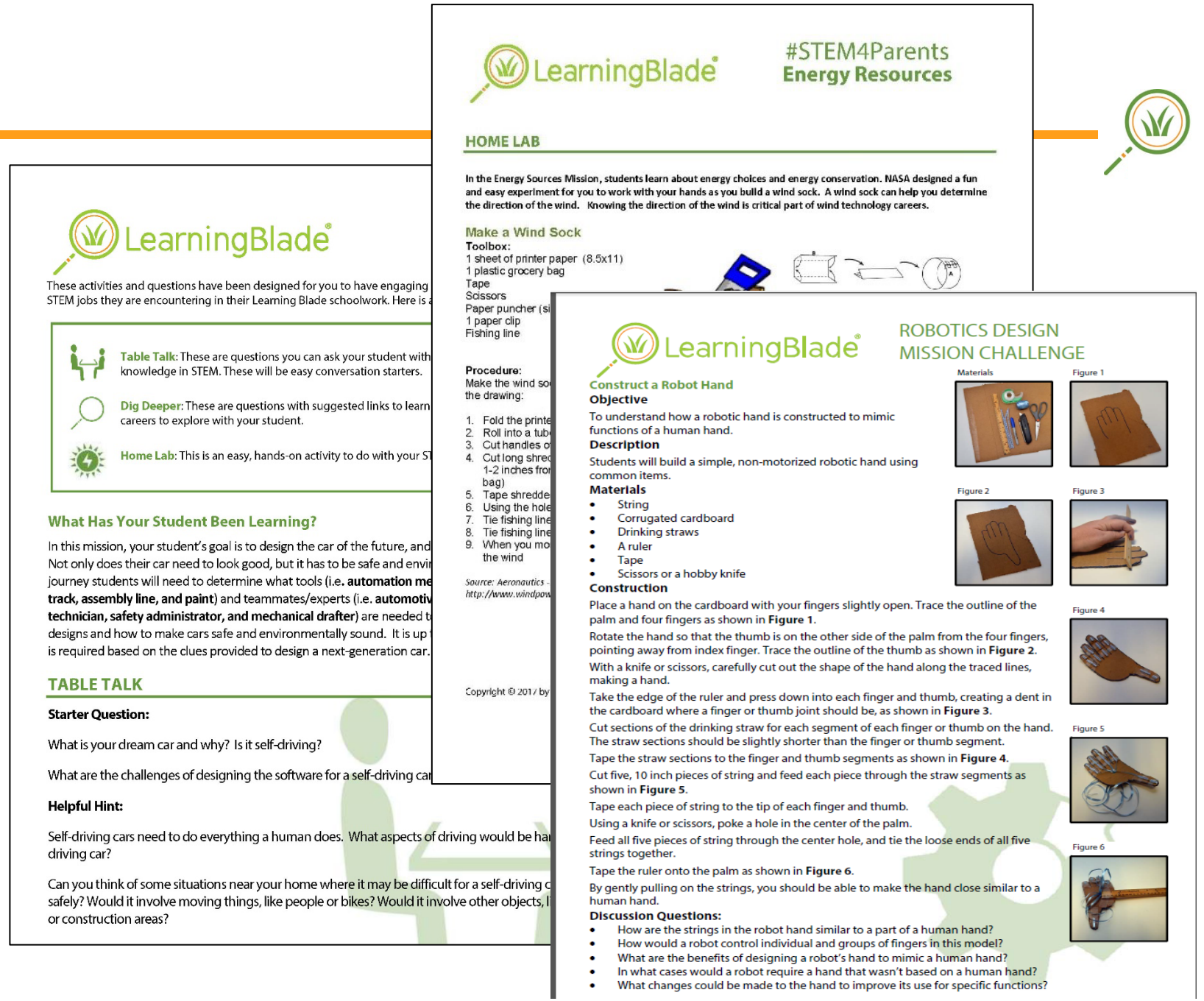


Parent Resources

Parents can introduce STEM careers and topics through:

- Home discussions
- Research questions
- Simple experiments

Activities linked to issues discussed in Learning Blade's online missions.



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#STEM4Parents
Energy Resources

HOME LAB

In the Energy Sources Mission, students learn about energy choices and energy conservation. NASA designed a fun and easy experiment for you to work with your hands as you build a wind sock. A wind sock can help you determine the direction of the wind. Knowing the direction of the wind is critical part of wind technology careers.

Make a Wind Sock

Toolbox:
1 sheet of printer paper (8.5x11)
1 plastic grocery bag
Tape
Scissors
Paper puncher (si
1 paper clip
Fishing line

Procedure:
Make the wind so
the drawing:

1. Fold the printe
2. Roll into a tub
3. Cut handles o
4. Cut long shred 1-2 inches fro bag)
5. Tape shredde
6. Using the hole
7. Tie fishing line
8. Tie fishing line
9. When you mo the wind

Source: Aeronautics
http://www.windpow

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These activities and questions have been designed for you to have engaging
STEM jobs they are encountering in their Learning Blade schoolwork. Here is

Table Talk: These are questions you can ask your student with knowledge in STEM. These will be easy conversation starters.

Dig Deeper: These are questions with suggested links to learn careers to explore with your student.

Home Lab: This is an easy, hands-on activity to do with your S

What Has Your Student Been Learning?

In this mission, your student's goal is to design the car of the future, and
Not only does their car need to look good, but it has to be safe and envi
journey students will need to determine what tools (i.e. **automation me track, assembly line, and paint**) and teammates/experts (i.e. **automotiv technician, safety administrator, and mechanical drafter**) are needed t
designs and how to make cars safe and environmentally sound. It is up
is required based on the clues provided to design a next-generation car.

TABLE TALK

Starter Question:

What is your dream car and why? Is it self-driving?

What are the challenges of designing the software for a self-driving ca

Helpful Hint:

Self-driving cars need to do everything a human does. What aspects of driving would be ha
driving car?

Can you think of some situations near your home where it may be difficult for a self-driving c
safely? Would it involve moving things, like people or bikes? Would it involve other objects,
or construction areas?

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ROBOTICS DESIGN
MISSION CHALLENGE

Construct a Robot Hand

Objective

To understand how a robotic hand is constructed to mimic functions of a human hand.

Description

Students will build a simple, non-motorized robotic hand using common items.

Materials

- String
- Corrugated cardboard
- Drinking straws
- A ruler
- Tape
- Scissors or a hobby knife

Construction

Place a hand on the cardboard with your fingers slightly open. Trace the outline of the palm and four fingers as shown in **Figure 1**.

Rotate the hand so that the thumb is on the other side of the palm from the four fingers, pointing away from index finger. Trace the outline of the thumb as shown in **Figure 2**.

With a knife or scissors, carefully cut out the shape of the hand along the traced lines, making a hand.

Take the edge of the ruler and press down into each finger and thumb, creating a dent in the cardboard where a finger or thumb joint should be, as shown in **Figure 3**.

Cut sections of the drinking straw for each segment of each finger or thumb on the hand. The straw sections should be slightly shorter than the finger or thumb segment.

Tape the straw sections to the finger and thumb segments as shown in **Figure 4**.

Cut five, 10 inch pieces of string and feed each piece through the straw segments as shown in **Figure 5**.

Tape each piece of string to the tip of each finger and thumb.

Using a knife or scissors, poke a hole in the center of the palm.

Feed all five pieces of string through the center hole, and tie the loose ends of all five strings together.

Tape the ruler onto the palm as shown in **Figure 6**.

By gently pulling on the strings, you should be able to make the hand close similar to a human hand.

Discussion Questions:

- How are the strings in the robot hand similar to a part of a human hand?
- How would a robot control individual and groups of fingers in this model?
- What are the benefits of designing a robot's hand to mimic a human hand?
- In what cases would a robot require a hand that wasn't based on a human hand?
- What changes could be made to the hand to improve its use for specific functions?

Materials

Figure 1

Figure 2

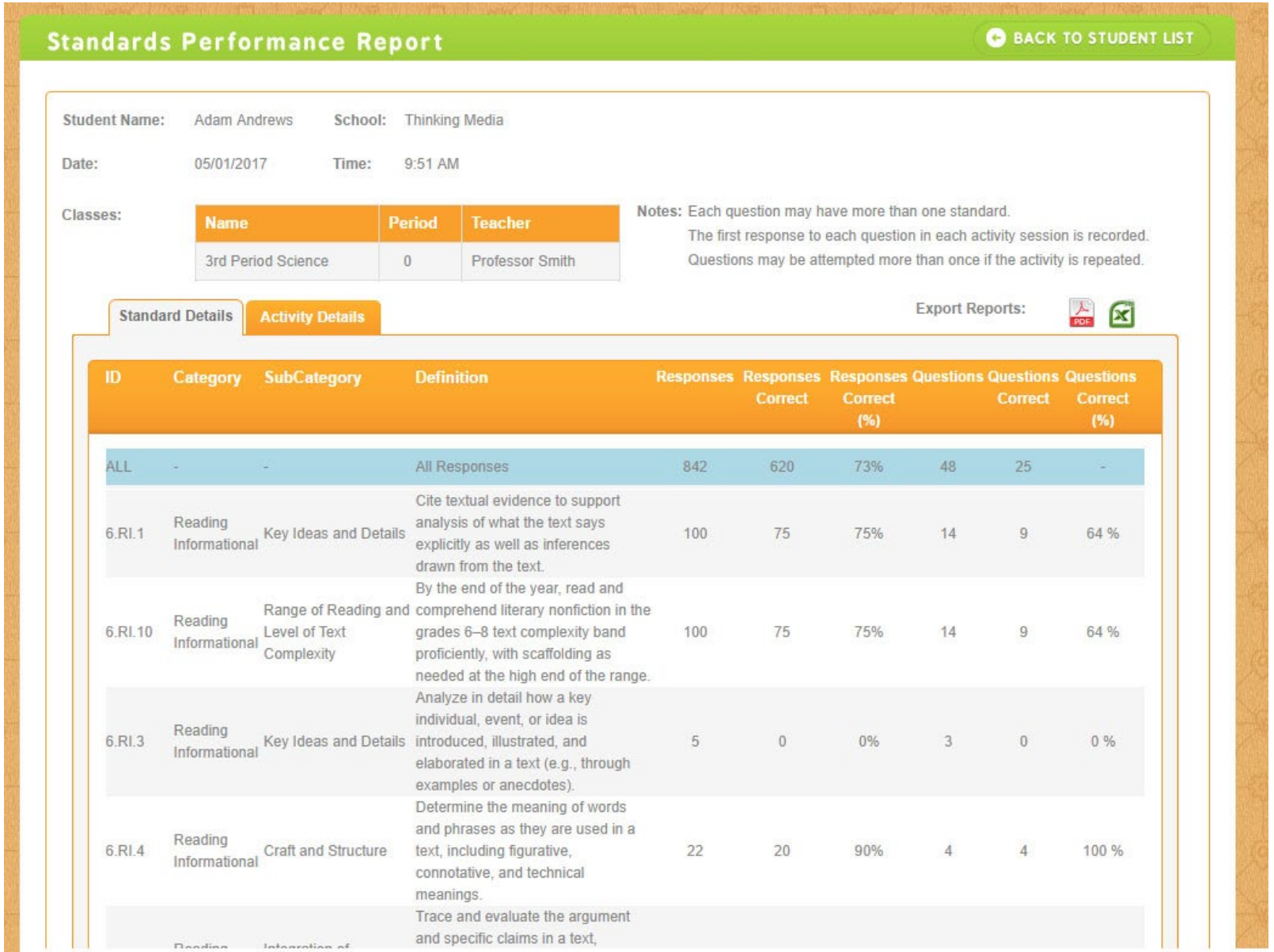
Figure 3

Figure 4

Figure 5

Figure 6

The system provides academic skills reports by class or student.



Standards Performance Report

BACK TO STUDENT LIST

Student Name: Adam Andrews **School:** Thinking Media

Date: 05/01/2017 **Time:** 9:51 AM

Classes:

Name	Period	Teacher
3rd Period Science	0	Professor Smith

Notes: Each question may have more than one standard.
The first response to each question in each activity session is recorded.
Questions may be attempted more than once if the activity is repeated.

Standard Details | Activity Details

Export Reports:

ID	Category	SubCategory	Definition	Responses	Responses Correct	Responses Correct (%)	Questions	Questions Correct	Questions Correct (%)
ALL	-	-	All Responses	842	620	73%	48	25	-
6.RI.1	Reading Informational	Key Ideas and Details	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	100	75	75%	14	9	64 %
6.RI.10	Reading Informational	Range of Reading and Level of Text Complexity	By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	100	75	75%	14	9	64 %
6.RI.3	Reading Informational	Key Ideas and Details	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).	5	0	0%	3	0	0 %
6.RI.4	Reading Informational	Craft and Structure	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.	22	20	90%	4	4	100 %
			Trace and evaluate the argument and specific claims in a text,						

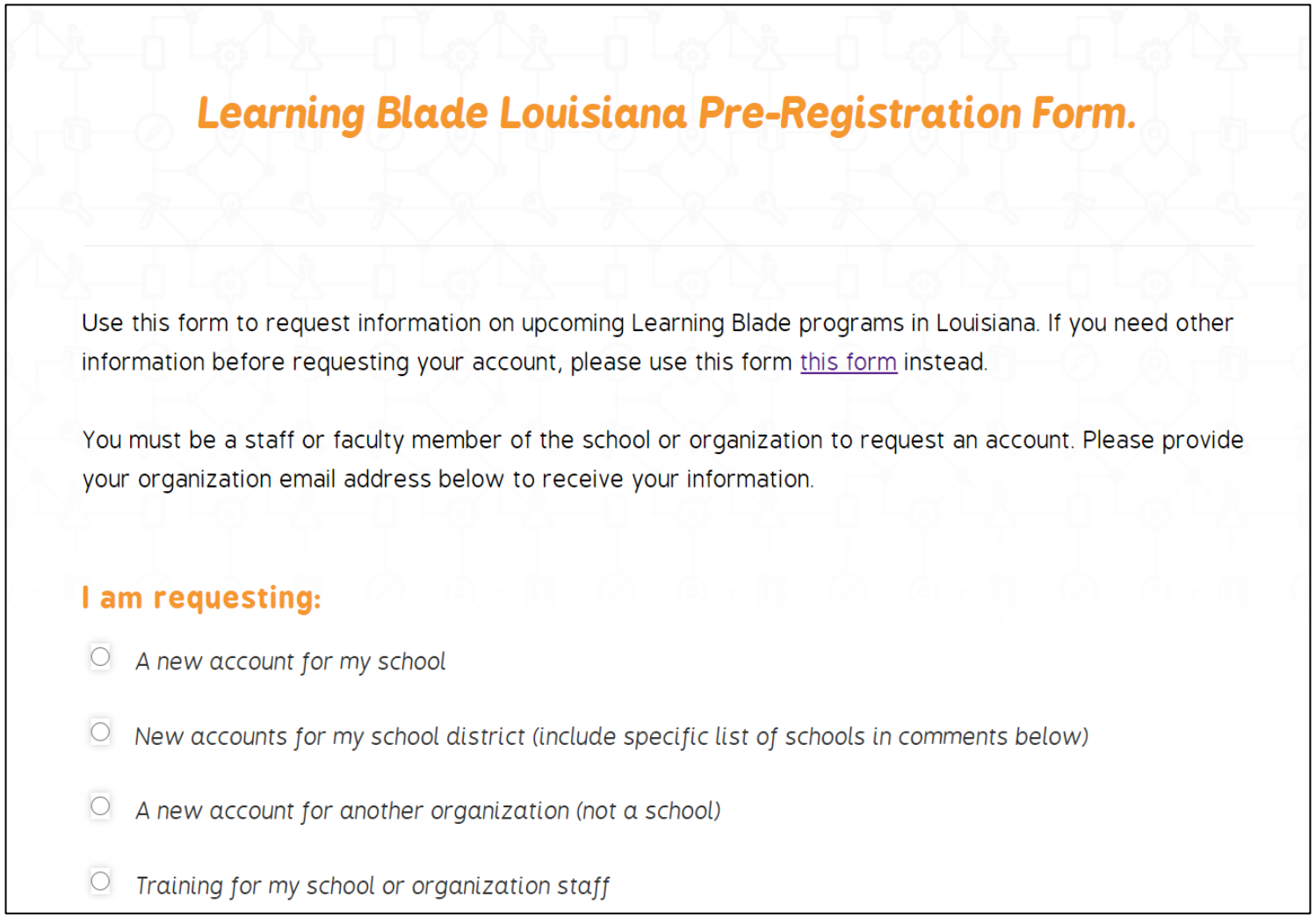
Lessons are specifically aligned to state academic standards.

We have multiple statewide and district implementations.

- **Tennessee** - with TN STEM Innovation Network
  - **200,000+ hours of STEM instruction**
  - **1,000,000+ STEM lessons completed**
- **Arkansas** – with AR Public School Resource Center
  - **200,000+ hours of STEM instruction,**
  - **1,000,000+ STEM lessons completed**
- **Missouri** – with Dept. of Elementary and Secondary Education
- **Alabama** – with Dept. of Commerce, Governor and Boeing
- **South Carolina** – with Office of Career and Tech Ed.
- **Idaho** – with STEM Action Center
- **Also Multiple Districts/Schools in:**
  - Florida
  - Georgia
  - Kentucky
  - North Carolina
  - Ohio

We are pre-registering interested school in Louisiana now!

Just go to www.LearningBlade.com/LA



Learning Blade Louisiana Pre-Registration Form.

Use this form to request information on upcoming Learning Blade programs in Louisiana. If you need other information before requesting your account, please use this form this form instead.

You must be a staff or faculty member of the school or organization to request an account. Please provide your organization email address below to receive your information.

I am requesting:

- ○ *A new account for my school*
- ○ *New accounts for my school district (include specific list of schools in comments below)*
- ○ *A new account for another organization (not a school)*
- ○ *Training for my school or organization staff*

LearningBlade®

Growing interest and sharpening skills for STEM.

Thank you

To request training or for more info please email:

info@learningblade.com

Other Business, Adjournment

Dr. Randall Brumfield, Deputy Commissioner for Strategic Planning & Student Success

A. LaSTEM Quarterly Meetings for 2021
   - Wednesday, August 18, 2021 10:00 am – 12:00 pm
   - Wednesday, November 10, 2021 10:00 am – 12:00 pm