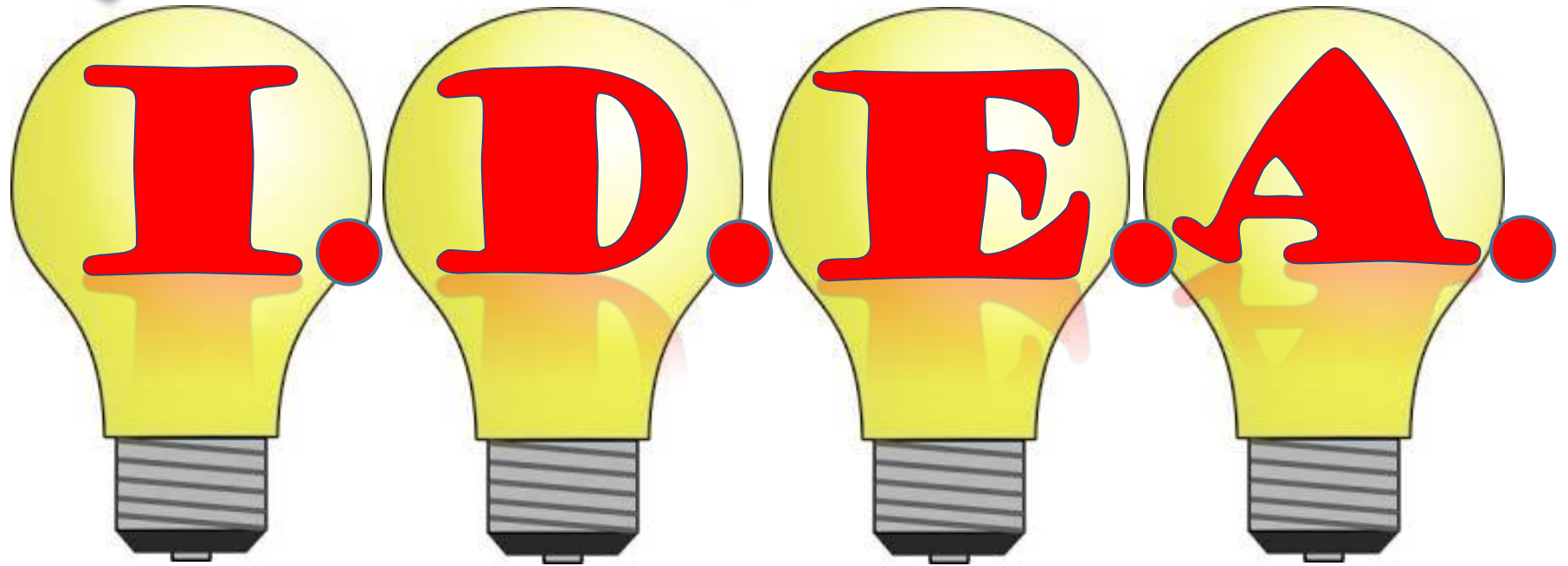


# A Bright



*Presented by Kaycie Rogers  
East Jackson Elementary School STEM Program  
West Georgia STEM Conference  
March 2-3, 2015*

# East Jackson Elementary School

- Rural Title 1 School located in Commerce, Georgia (58% free/reduced lunch)
- Serving students in Pre-K through 5<sup>th</sup> grade
- Population of about 500 students
- 3 or 4 classes per grade level



Home of the Eagles

# Our Goals

- To develop strong problem solvers
- To promote creative thinking
- To improve student communication skills and foster an environment of teamwork
- To develop awareness of STEM career fields
- To enrich science and math instruction provided in the regular classroom

## Our Solution...

The

**I**nvestigation

**D**iscovery

**E**xploration

**A**ction

**L A B**



Lab

# Program Logistics

- Part of a 5-class “Specials” rotation, including PE, Art, Music, and Technology
- See students in 50-minute sessions, 2 out of every 10 days (consecutive days)
- One teacher serves K-2 and the other serves 3-5

BE CURIOUS!



Wonder and Question!

BE A PROBLEM SOLVER!



Take Care of Business!

BE RISKY!



Try Something Unexpected!

## OUR CLASS "BE" LIEFS

BE CREATIVE!



Come up with a new or different idea!

BE PERSISTENT!



Don't Give Up...  
Especially When the Work Gets Hard!

BE A HAPPY HELPER!



Communicate with kind words, voices, & actions.



“Life may have failures,  
but this was NOT it.  
The only true failure  
can come if you  
quit!”

~From Rosie Revere, Engineer by  
Andrea Beaty

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# Welcome to Our Class!



Large Open Floor Space  
& Tables for Group Work



Supplies Easily Accessible  
to Students



Storage Space for  
Works-in-Progress





# Welcome to Our Class!

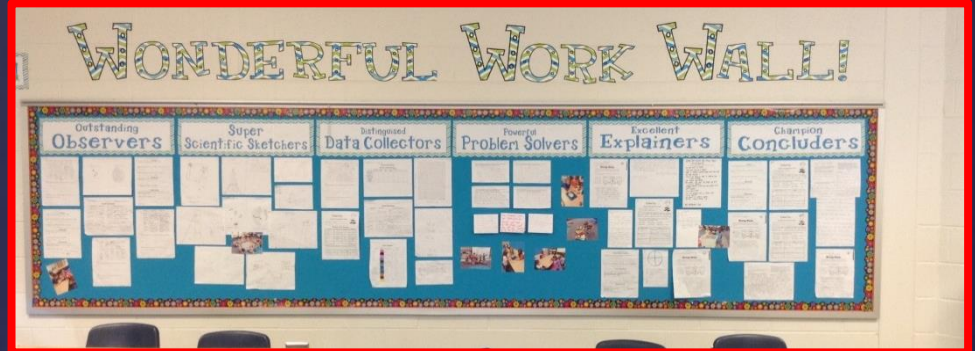
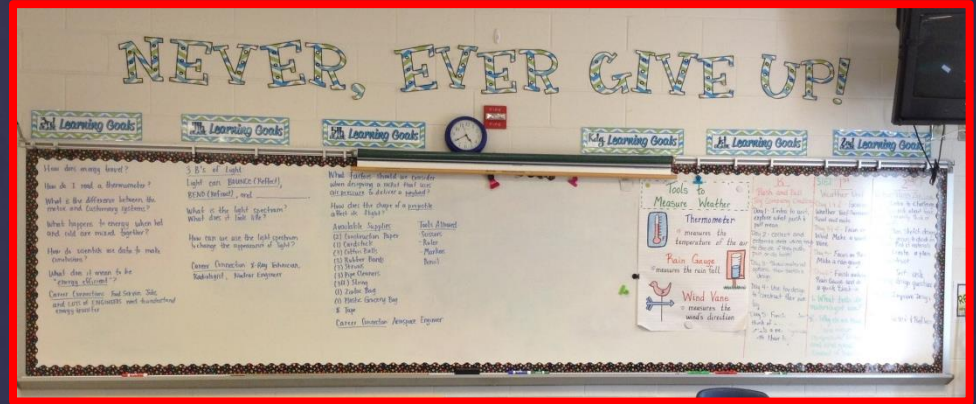
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Instructional Resources

# Welcome to Our Class!

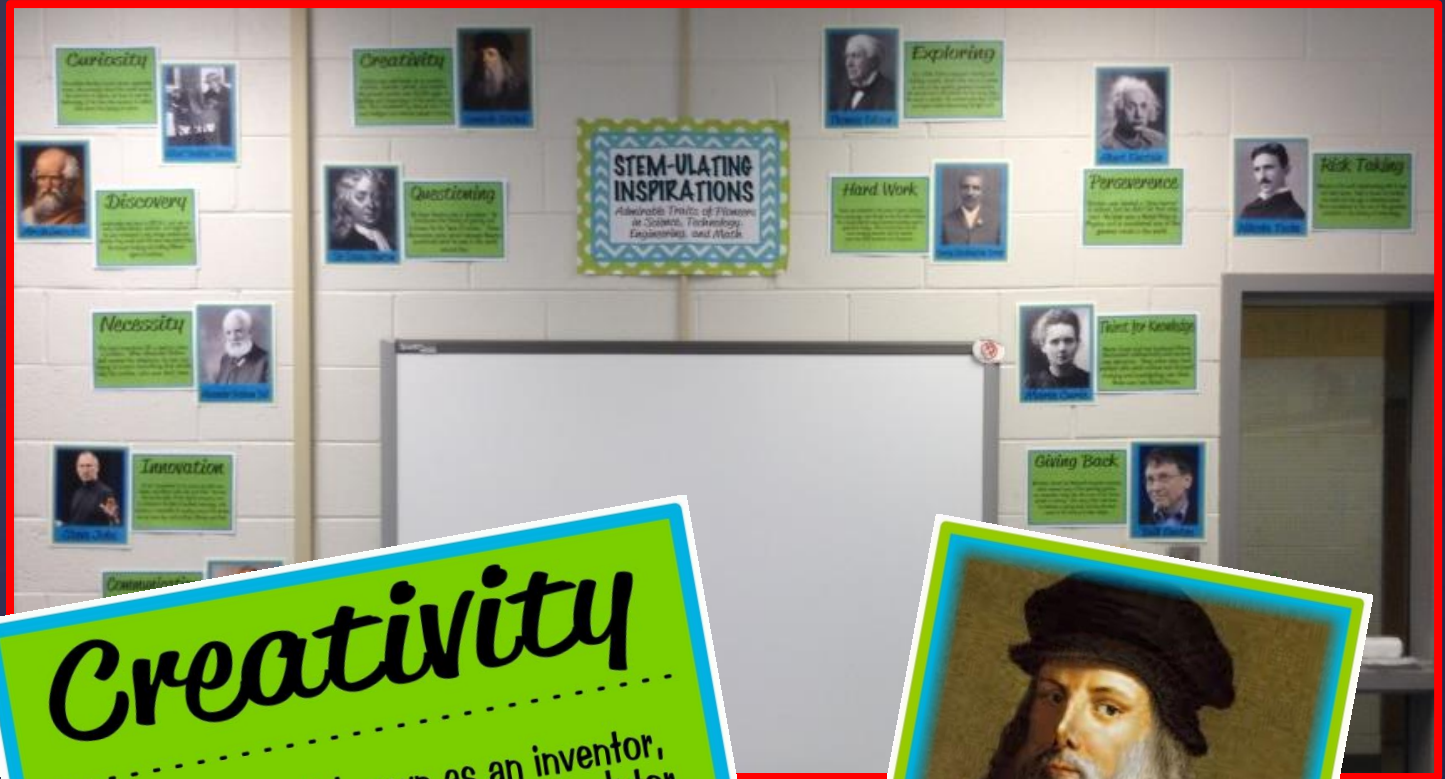
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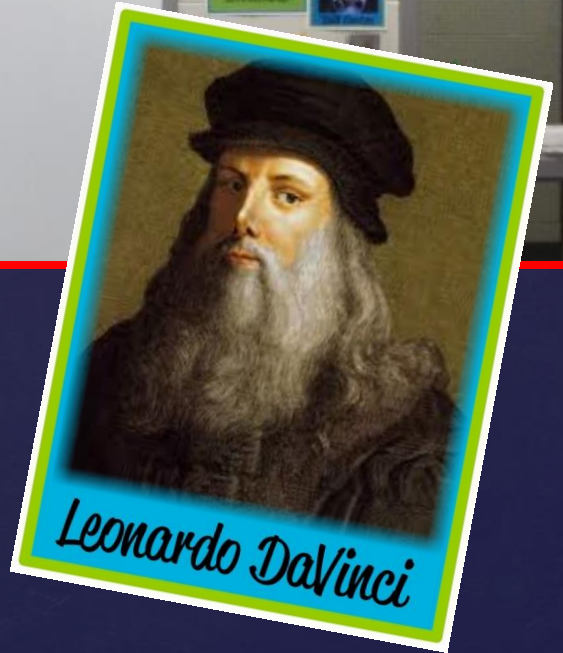
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## Creativity

DaVinci was well-known as an inventor, architect, scientist, painter, and sculptor. His journals contain over 13,000 pages of sketches and observations of the world around him. He is considered by many as one of the most intelligent and talented people in history.



Leonardo DaVinci

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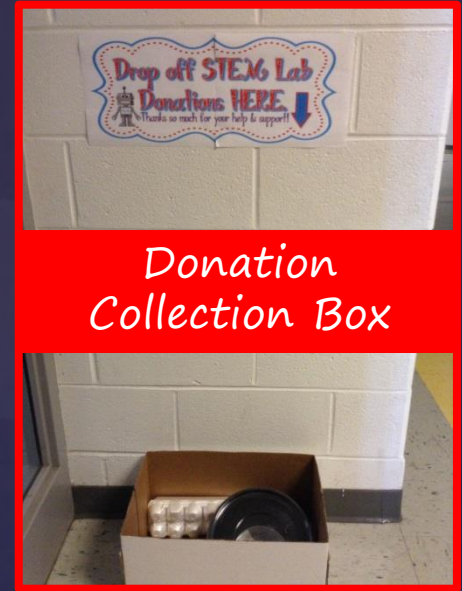
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# Welcome to Our Class!



School-Wide STEM Storage  
(Organized By Unit)



Donation  
Collection Box



Extra Storage Room



Recyclables



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# Instructional Base

- Georgia Performance Science Standards in Grades K-5
- Common Core Georgia Performance Math Standards in Grades K-5
- EJES STEM Program Scope and Sequence

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# Students at Work: K-2 Project IDEA

Designing toys for the Push 'n Pull Toy Company after studying force and motion standards in science



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# Students at Work: 3-5 Project IDEA

Designing and testing parachutes to enhance number and operations standards in math



The Toilet Dilemma \$1.74	Unstoppable \$2.24	Fireback \$2.47	\$2.15	\$3.11	King \$4.26	The Man \$4.37	C.A.C.C. \$4.54	The
1st	2nd	3rd	4th	5th	6th	7th	8th	
The Little Pickball 1.729	The King 1.680	The Flying Solo 1.670	The High Flyer 1.649	The Flyer 1.621	High Sky Flyer 1.618	Over the Top 1.417	The Zoomer 1.575	Ev

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# Students at Work: School-Wide Projects



Catapult Competition  
Winter 2014



Spaghetti Tower  
Structures  
Fall 2013



Egg-Pert Engineer  
Bridge-Building Challenge  
Fall 2014





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# Lesson Planning Resources

- AIMS Education Foundation <http://www.aimsedu.org/>
- Discover Engineering <http://discovere.org/>
- Time to Invent <http://timetoinvent.org/>
- PBS Kids Design Squad <http://pbskids.org/designsquad/>
- Steve Spangler <http://www.stevespanglerscience.com/>
- NSTA Learning Center <http://learningcenter.nsta.org/>
- Discovery Education <http://www.discoveryeducation.com/>
- Teach Engineering <http://www.teachengineering.org/>
- American Society of Mechanical Engineers  
<https://www.asme.org/>
- Camp Invention Manual
- Elementary Science Olympiad Manual
- Don't forget valuable human resources, such as middle and high science teachers and students in your district, local colleges, RESA consultants, and parents of students in your school! (Facebook is a great tool to reach out to parents.)





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# Picture Book Inspiration Resources (Engineering & Invention)

- *The Most Magnificent Thing* by Ashley Spires
- *Iggy Peck, Architect* by Andrea Beatty
- *Rosie Revere, Engineer* by Andrea Beatty
- *Stuck* by Oliver Jeffers
- *Not a Box* by Antoinette Portis
- *Not a Stick* by Antoinette Portis
- *Beautiful Oops* by Barney Saltzberg
- *A Little Bit of Oomph!* by Barney Saltzberg
- *Anything is Possible* by Giulia Belloni
- *Pop! The Invention of Bubble Gum* by Meghan McCarthy
- *Marvelous Mattie: How Margaret E. Knight Became an Inventor* by Emily Arnold McCully
- *The Dumpster Diver* by Janet S. Wong
- *The Boy Who Invented TV: The Story of Philo Farnsworth* by Kathleen Krull
- *Imaginative Inventions: The Who, What, Where, When, and Why of Roller Skates, Potato Chips, Marbles, and Pie* by Charise Mericle Harper



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# Gathering Materials

- Start a school “stockpile.” Gather resources from teachers in your building to store in an easily accessible central location.
- Pitch to your PTSO. Present at a Parent Night meeting and have a “Giving Tree” or “Life Saver Wall” so parents can help donate needed consumable items.
- Plan ahead and request specific donations on your school website, Facebook page, and on class websites or newsletters.
- Create a quick and easy online sign-up list at <http://doodle.com/>.
- Maintain a “Donation Dropbox” so people always know where they can leave recyclables and other donations.
- Get kids excited about upcoming projects, then ask them to bring donations from home. (They are great salespeople when you build their excitement!)
- Reach out to local business partners.
- Write grants for specific projects.
- USE PARENT VOLUNTEERS TO HELP ORGANIZE!



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# STEM Outreaches

- Eagle Explorers Club
- Science Olympiad Team
- Camp Invention
- Family Science/Math Nights
- Special Guests (Live or Virtual)
- New Robotics Program

# Where We're Headed: Future Goals



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- More Collaborative Projects with Homeroom Teachers and Support Staff
- Stronger Technology Integration
- Rotating Centers for Homeroom Classes
- Add a Career-Based Connection to Each Project
- Plan field trips to local STEM-based Industries or host Skype Tours/ Interviews with Local Businesses
- Implement Grant-Funded Projects



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# Resources

Find links to this presentation and additional resources at our STEM Program website:

<http://ejesstem.weebly.com/teacher-resources.html>. Follow our blog to learn about activities happening in our classroom.





*Lab*

# QUESTIONS?



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