

S.T.E.M.

Elementary Implementation

November 13, 2013

DISTRICT GOAL

- Create integrated STEM learning opportunities at every grade level
- 2012- Research and Slaybaugh Pilot
- 2013- Grades K-5 Grade 6 pilot
- Prepare for 2014-15 Grades 7-12

P.A.R.C.C.

- ◉ 2015
- ◉ College and Career Readiness
- ◉ Integration of Various Content Areas
- ◉ Application of Knowledge based on Understanding!
- ◉ Important to prepare NOW!

S.T.E.M.

- ⦿ What it is...and what it is not.
- ⦿ STEAM
- ⦿ STREAM
- ⦿ **iSTEM**
- ⦿ STEMmania

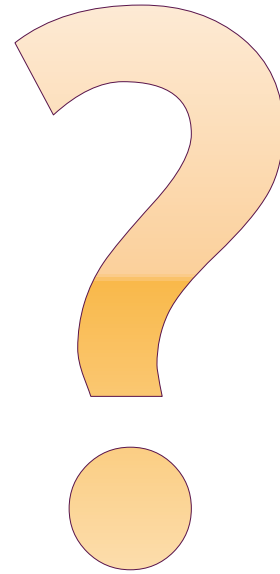
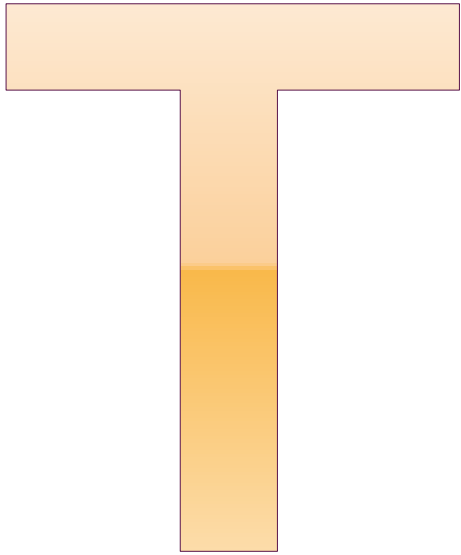
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SCIENCE

- ◉ Deals with and seeks the understanding of the natural World
- ◉ A way of pursuing knowledge
- ◉ A systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe.



TECHNOLOGY

- ◉ Study of the man-made world
- ◉ Modification of the natural world
- ◉ To design, cut, shape, put together materials
- ◉ To move things from one place to another
- ◉ To reach further with our hands, voices, senses

- ◉ NOT COMPUTERS!

E

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ENGINEERING

- ◉ Not the career
- ◉ How something is made
- ◉ How something works
- ◉ Utilizing materials and forces of nature for the benefit of mankind
- ◉ Application of knowledge to design, build, and maintain structures, devices, systems, materials, and processes

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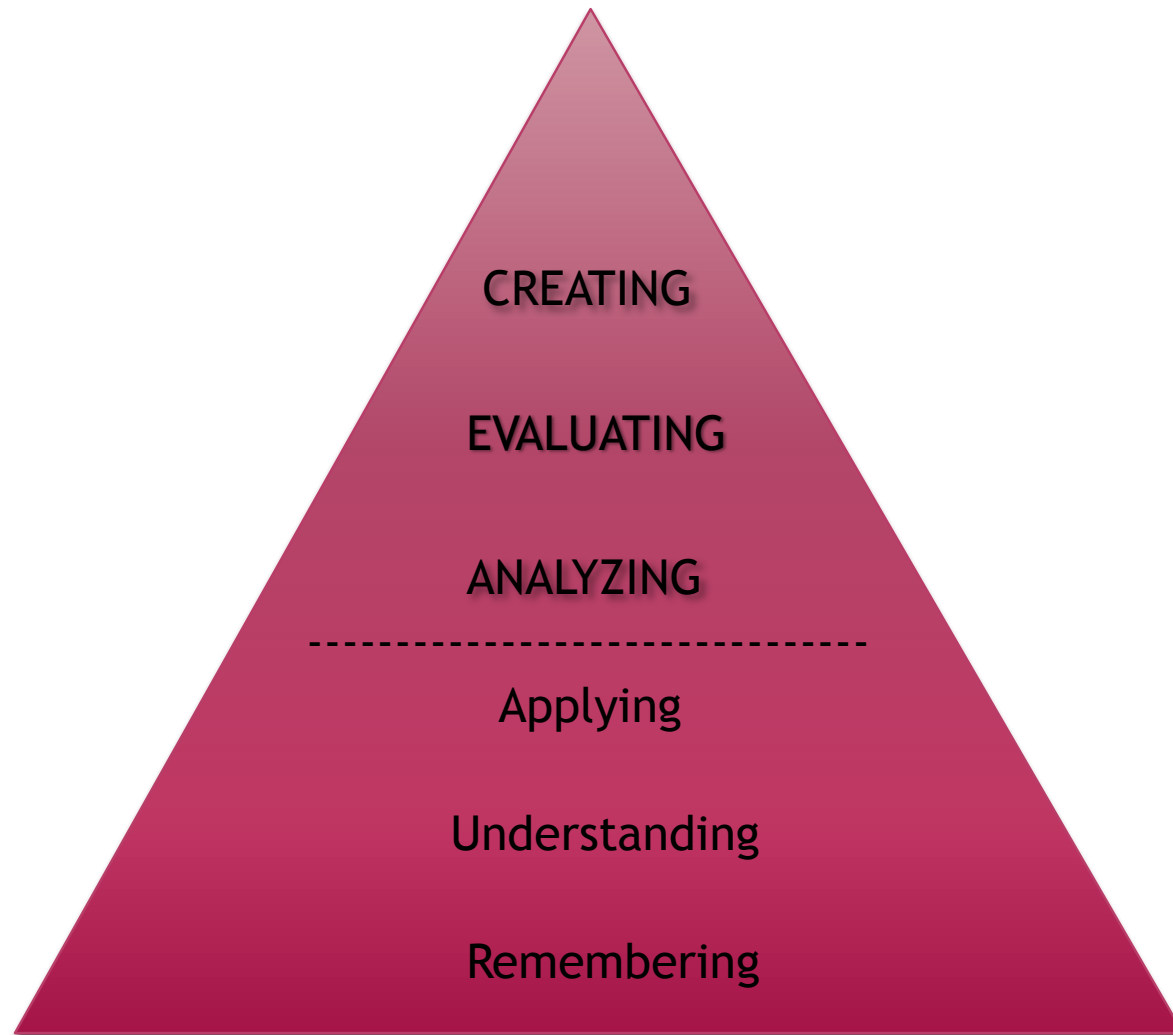
MATHEMATICS

- The science of patterns and relationships that provides an exact language for teaching science and engineering.
- Abstract study of quantity, structure, space, and change.

SO WHAT IS IT? ALL OF THAT AND THEN SOME.....

- ◉ Integrated Learning
- ◉ Problem Solving
- ◉ Innovative learning
- ◉ Communications
- ◉ Productive TEAMWORK
- ◉ Decision Making
- ◉ Problem-Based learning
- ◉ QUAD D
- ◉ Relevant Learning
- ◉ 21st Century teaching and learning
- ◉ Best Practice
- ◉ Foundation of how and what we teach

THE NEW BLOOMS



A PARADIGM SHIFT

- ◎ 20th century to 21st century!!!!
- ◎ Teacher teaching to **student learning/discovery**
- ◎ Teacher lecture to **students teaching others**
- ◎ Closed door to **open door**
- ◎ Pen and paper note-taking to **wikis, blogs, tech.**
- ◎ Teacher as provider to **teacher as learner**
- ◎ Teacher to student to **teacher facilitating groups**

WHAT S.T.E.M. IS NOT



WHAT S.T.E.M. IS....

- ◉ Integration!
- ◉ Blended Learning opportunities!
- ◉ Engage students
- ◉ Real world Connections
- ◉ Lessons that incorporate many content areas



EMPLOYEES WANT

- ⦿ People who are willing and able to **share information and ideas**
- ⦿ People who can work in **teams**
- ⦿ People who are **responsive to change**
- ⦿ Sense of **ownership of work and ideas**
- ⦿ Willingness to take **calculated risks**
- ⦿ Multicultural experiences/**communication**
- ⦿ **Problem solvers**

HOW DO WE PREPARE OUR STUDENTS?

S.T.E.M.

More than this 4 letter word!

1. LESSON DESIGN

CREATE

DESIGN

PRESENT

PLAN

INVENT

DEVISE

MAKE

PROGRAM

PODCAST

ANIMATE

BLOG

PUBLISH

DIRECT

PRODUCE

SOLVE

LEARN LANGUAGES

WORK IN TEAMS

GLOBAL PROJECTS

DISCOVER

2. FACILITATE LESSONS

- ◉ Student collaboration
- ◉ Research with technology
- ◉ Create relevant projects
- ◉ Analyze their work
- ◉ Evaluate their work
- ◉ Present their work
- ◉ Redesign

3. SHAPE STUDENTS

- ◉ To be independent-dependable 21st century learners!
- ◉ Allow to explore-don't spoon feed
- ◉ Its ok for a class of 20 students to produce 20 different work products!
- ◉ Multiple possible solutions



WHEN DO WE START? HERE AND NOW!

- EHT STEM Committee/Grade level Teachers
 - EHT STEM Website- School/Main page
 - Select 2 out of 3 lessons
 - 1st Trimester- Earth Science
 - 2nd Trimester- Physical Science
 - 3rd trimester- Life Science
- Resources, Materials, Design Process
LAL, MATH, Social Studies
Reading Specialists, GT Teacher, Media Specialists,
Computer Teacher, Supervisors

*** On Lesson Plan and Go for it!**



The future belongs to those who **CHALLENGE
THE PRESENT...**
not to those who learn how to service the past!