LAKESIDE MIDDLE SCHOOL STEM Action Plan
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1. Big Picture

• Transition Lakeside from a school of many small initiatives to one cohesive STEM academy.
  o Gather information from other STEM Middle Schools
  o Encourage students to become independent thinkers
  o Promote inquiry based learning
  o Provide model STEM lessons to teachers during content planning
  o Plan & execute a science and engineering STEM day

2. Time Line

• First Nine Weeks
  o Train teachers on the STEM model & provide resources
  o Provide teachers with the opportunity to observe STEM lessons
  o Administer a pre-assessment survey to students & teachers
• Second Nine Weeks
  o Science and Engineering Day
  o Guest Speakers
  o Each team will have a parent day
    • Block 1: Identify Problem and generate idea
    • Block 2: Select a solution
    • Block 4: Make/design the item
    • Block 5: Evaluate
    • AE: Students present designs to parents
• Third Nine Weeks
  o Mid-Term assessment survey of STEM
  o STEM Themed Career Day
• Fourth Nine Weeks
  o STEM themed field trips
  o Final assessment survey of STEM

3. Assessments

• Rubrics for STEM projects in various content areas
• Student and teacher surveys to assess knowledge about and comfort level with STEM instruction
• Presentations on Science & Engineering Day

4. Resources

• Guest speakers
• STEM coordinator
• Field trip resources
• Project materials (dependent on grade level and content project)
• www.engineeryourlife.com
• Hot, Flat, and Crowded
• Local & regional schools and businesses

5. Learning Experiences
• Science & Engineering Day
• STEM influenced field trips
• Student & teacher assessment surveys


- The students will spend a few class periods examining a text set of expository texts including recipes, instruction manuals, directions, and how-to essays.
- Through inquiry, the students will determine what these texts have in common & what features are essential in an expository text.
- Next, students will be given material (pipe cleaners, Legos, etc) to build a simple structure. Then, the students will draft an essay in Writing Workshop that explains how to rebuild their model.
- During the “Evaluate” phase of the design process, students will switch papers and attempt to build each other’s structures without seeing the originals. Through this process, students will be able to see where they need to revise and edit their writing in order to produce a published essay.

7. Another Example: Science: Penny Boats

- Students will apply knowledge of technological design by constructing paper boats. Their task will be to design a boat out of one piece of printer paper, two drinking straws, and one meter of masking tape.
- The goal is to have a boat that can float and hold the most pennies.
- Students must first brainstorm ideas with their team, write their ideas, and sketch the design in their science notebooks. After the boats have been constructed and tested, students will evaluate their boats and write ways in which they can improve the boat design.

8. One More Example: Social Studies: Wax Museum

- Students will choose a character from history and explain how that character’s contributions affected history.
- The focus will be on a historical invention, new technology, or solution to a problem.
- Student presentations will include dressing as their historical character, explaining the character’s STEM based contributions, a model of that contribution (if possible), and the historical impact of the contribution.

9. Last Example: Math: Gingerbread Houses

- Students will be given basic parameters, such as dimensions for furniture and scale of the house, in which to construct a house that is self-supporting to investigate the concept of surface area.
- The house must be made of gingerbread and an icing mixture. Students must also arrange specific items in their house according to appropriate dimensions.

10. Conclusion

- Students and teachers will rethink traditional direct instruction lessons.
• Inquiry will be a frequently used teaching strategy.
• We will create independent thinkers who can solve real world problems.