Diocese of Venice Department of Education

FAMILY

STREAM CHALLENGE

WORK AS A TEAM TO CREATE YOUR OWN PAPER ROLLER COASTER AT HOME!

WHAT IS STREAM?

STREAM IS AN ACRONYM FOR SCIENCE, TECHNOLOGY, RELIGION, ENGINEERING, ARTS, AND MATHMATICS.

S — Science, computer Science (coding, programing), Inquiry, Scientific Method

T — Robotic technology, computing language using computers and iPads

R — Catholic Virtues, Catholic Science and Math Standards (Cardinal Neuman Society), Core Values, and Gracious Professionalism

E — Engineering Design Cycle, Mechanical, Structural, and Computational Engineering

A — Artistic reasoning, spacial awareness, structural design, creative thought process, problem-solving skills

M — Precision of mathematical calculations, measurements and dimensions, problem-solving using algorithms, relations and proportions.

THE COMMON MISCONCEPTION IS THAT THE ACRONYM "STREAM" INVOLVES STAND-ALONE SUBJECTS OF THE ACRONYM OR HANDS-ON ART/SCIENCE EXPERIMENTS. STREAM IS A CROSS-CURRICULAR MULTIFACETED SUBJECT THAT USES SCIENCE [AND COMPUTER SCIENCE], AND ENGINEERING CONTENT [AND DESIGN PROCESS], USING INNOVATIVE TECHNOLOGY, MATHEMATICAL REASONING, ARTISTIC REPRESENTATION, AND RELIGIOUS INTEGRATION, THROUGH PROJECT-BASED LEARNING EXPERIENCES.

AUTHENTIC STREAM PROJECTS ALLOW AND CELEBRATE STUDENT DESIGN FAILURE AND ENCOURAGE A GROWTH-MINDSET. STREAM ENVIRONMENTS SHOULD ALLOW FOR STUDENT CREATIVE CHOICE IN THE PRODUCTION OF STUDENT OUTCOMES. THE SPACE SHOULD BE RICH IN DISCUSSION, DIVERSITY, COMMUNICATION, PROBLEM SOLVING, MODELING, AND FAIR TESTING.

TEACHERS/PARENT SHOULD REINFORCE THE ENGINEERING DESIGN PROCESS TO ENCOURAGE AN AUTHENTIC AUTONOMOUS THOUGHT PROCESS IN STUDENTS.

AT HOME LESSON IDEAS:

1. Start with the Engineering Design Process!
Click here for a lesson on Engineering

E

2. Learn about rollercoasters!
Click here to watch a video on roller coasters

S T E M

3. Explore some of the paper coasters HERE

T

4. Review and post the Core Values with Catholic Virtues during this activity to promote an atmosphere of Chrisitan attitudes during this group project.

R

5. Draft your own design! Calculate your materials list

A M

6. Start making your coaster!

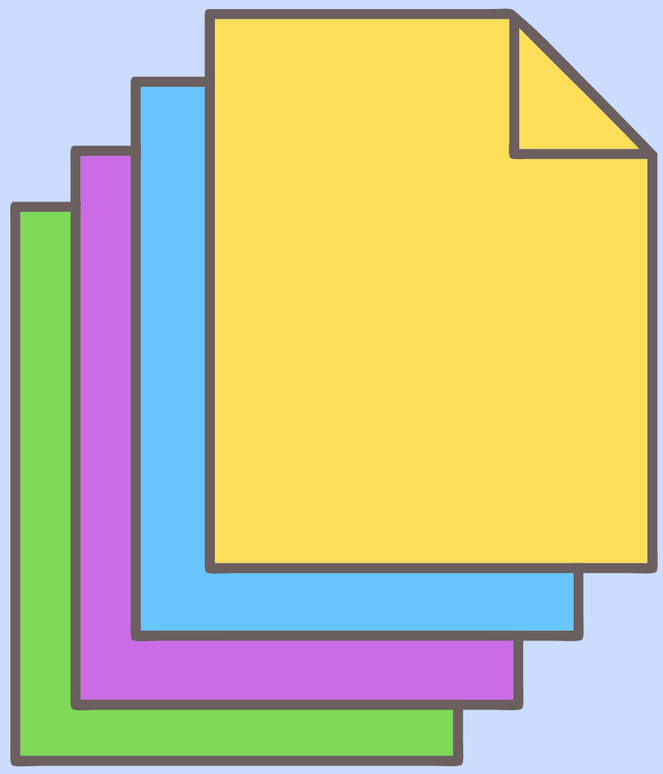
Directions, Printable Templates, and Even Cricut/Cameo files to cut the parts. Watch video tutorials HERE if you need help.

S T R E A M

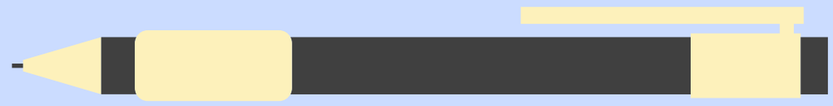
SUGGESTED MATERIALS

Scissors

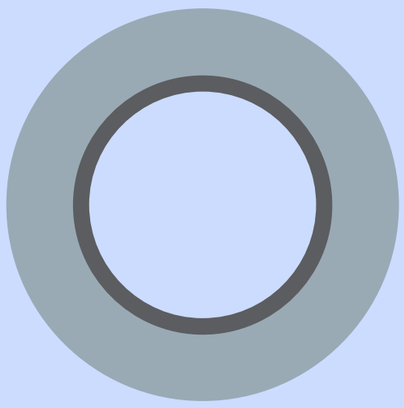
Cardstock



Colored Cardstock



Pen for scoring



Tape

Ruler for scoring

Marble

Dont have a marble? Try a frozen pea, grape. Or make a small ball with playdough and let it dry out for a day or more

Printer to print the templates

SHARE YOUR DESIGN!

CLICK HERE TO SHARE YOUR DESIGN AND SEE OTHER FAMILY COASTERS!

Password: Lion1234