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BESE Region: 6
Goals and objectives:
SWBAT: graph a polynomial function
SWBAT: identify zeros, critical point, extremas, points of inflections
SWBAT: describe end behavior of functions
SWBAT: identify symmetry of graphs of functions
SWBAT: determine average rate of change
SWBAT: using linear equations to determine final budgets
A2:F-IF.B.4
A2:F-IF.B.6
A2:F-IF.C.7
A2:F-IF.C.9
A2:F-BF.B.3
A2:A-REI.C.6

Abstract:
We want our students to understand the connection between functions and the real world. We will introduce what a function is, the different characteristics of functions, and how students can see functions in the real world. Students will be having to complete multiple projects. These projects consists of coming up with their own scenario on how a function could be portrayed in the real world. The students will be grouped up and asked to create their own roller coaster however they please. We are asking the students to provide detailed explanation on a separate sheet of paper the characteristics of their function (absolute max/mins, zeros, increasing/ decreasing intervals, etc.) Students will present these roller coasters to the class at the end of the unit.

Rationale:
Students will need calculators to see connection of piecewise functions and experiment with domain and range in a calculator. Students will learn calculator skills throughout our lesson such as solving systems of equations graphically, finding zeros, max/min and evaluating functions on a graphing calculator.By using the eight calculators in class, we can have students work in small groups to collaborate on assignments involving the calculator skills. I know the calculators will not only benefit my students but will also benefit the other Algebra classes as I will share with the other teachers.

Description:
Students will need these calculators in order to work collaboratively in groups. The students will be working on a project that needs the students to graph functions. The students will take their knowledge from functions and relate it to the real world. Students will be creating their own roller coasters based on their creativity. They will need to understand the relationship of a function and a relation and in order for them to fully understand this a graphing calculator can be very beneficial.

Evaluation:
We will be completing pre and post assessments for the unit. At the beginning of the unit we will provide functions for the students and ask them to graph them on their graphing calculator and then state if it is a function or relation. Then for the post assessments we will ask one thing they knew, one thing they learned, and one thing they still have questions on. These pre and post assessments will help teachers determine student growth and with the graphing calculators students will be able to expand their learning. Our final assessment we will have the students creating their own roller coaster in groups. We want the students to be very creative and these graphing calculators will expand the students' ability to be creative with creating their roller coaster. We will be using formative assessments throughout the unit to determine their growth with the graphing calculators

Qualifications:
I am qualified because I have tutored high school students who have graphing calculators. I have witnessed the benefits of using calculators as a tool to enhance learning for students. I also attended a NMSI professional development workshop where they taught me lessons to implement calculators in my lessons. The workshop was called “laying the foundation: high school math.” I earned 24.75 hours during summer 2019.

Budget:
We would like to use ti-84 graphing calculators for our lesson and future lessons. The calculators cost $119.99 per calculator and would total for $960 for 8 calculators that we would like.

Graphing Calculators: Office Depot	https://www.google.com/shopping/product/8361236031318940855?lsf=seller:7933,store:4036462571432290573&prds=oid:10647549146525441682&q=graphing+calculator+ti+84&hl=en&ei=d5rgXaSkL4m8sAWD8aeYDg&lsft=cm_mmc:PLA-_-Google-LIA-_-1599196543-_-492840-VQ6-303472686160-VQ16-c-VQ17-pla-VQ18-local-VQ20-598732451247-VQ21-2742&lsft=gclid:EAIaIQobChMI4vGB6MaO5gIVhYTICh3pMw1XEAYYBSABEgIiIfD_BwE,gclsrc:aw.ds