**The Calculator: Compare and contrast**

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**Subject:** Mathematics

**Standards:**

CCSS.MATH.CONTENT.5.OA.A.1: Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

CCSS.MATH.CONTENT.HSA.CED.A.: Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

**Rational:**

The purpose of this lesson will be to compare and contrast a calculator from the past and the calculator of the present. They will ultimately see how far the tools to do mathematics have developed.

**Objective:**

Students will be able to compare and contrast two different types of calculators.

Students will be able to effectively and efficiently use an abacus and an electronic calculator.

**Lesson duration:** 60 minutes

**Assignment:** Research the abacus in the Library of Congress site and complete several problems using both an electronic calculator and an abacus. Then create a Venn Diagram comparing the two different calculators.

**Procedure:**

1. Discuss over the different ways they used to calculate things in the past

2. Go onto loc.gov and see pictures of an abacus

 <http://www.loc.gov/pictures/item/2009630281/> , <http://www.loc.gov/pictures/item/2002718080/> , <http://www.loc.gov/pictures/item/2010645727/>

3. Go to the [Chinese abacus site](http://www.loc.gov/teachers/additionalresources/relatedresources/science/tech.html), explore, and learn how to use an abacus

4. Compute several problems using both an abacus and an electric calculator

5. Explain and discuss how the abacus is used to find each problem

6. Go onto [class tools](http://www.classtools.net/education-games-php/venn_intro) website and create a Venn diagram, comparing and contrasting the different aspects of the use of these calculators

**Materials:**

Students will each need a computer, abacus, and electronic calculator.

Assessment:

