

Name: _____ Date: _____ Period: _____

Coloring a Map

1. Use Google to search for "Online coloring map USA". The first result should be http://www.hellokids.com/c_6928/coloring-pages/countries-coloring-pages/maps-coloring-pages/map-of-the-usa
2. Color all fifty states,... but watch out! To keep your coloring legal, make sure that neighboring states do not have the same color.
3. How many colors did you use? _____. Put your hand up when you are done.
4. In the list below, put a circle around the number of colors that can be used to legally color the map, and cross out the numbers which are too small.

1 2 3 4 5 6 7

I think / know that ____ colors is not enough because _____

I think / know that ____ colors is enough because _____

Scaling Up

1. Work in pairs and create your own with the least number of states that must be colored by
(a) one color, (b) two colors, (c) three colors, (d) four colors, (e) five colors

Scaling Down

1. Work in pairs and find out whether this map can be reduced to four colors.

2. If it can, describe each step you took. If it can't, explain why not.

3. The winner is the pair that can reduce the drawing with the fewest steps.

Greedy Coloring

1. A “greedy” coloring happens when some colors are selfish, and are used as often as possible.
2. Make a greedy coloring of the western states with blue, red, purple, green.
3. The winner is the student with the highest score. Here’s how to calculate your score:
4. Start with 100 points. Each purple state counts as -1. Each green state counts as -10.
5. Record your score here: _____

Challenge Game

1. Work in pairs. This is a head-to-head challenge against your partner.
2. Go to the website <http://www.thecolor.com/Coloring/Baby-Giraffe.aspx>
3. Select a color, and take turns color one “state” at a time with your color.
4. The winner is the player who forces his/her opponent to color neighboring states with the same color.

Coloring a Cylinder

1. What would happen if you taped the two ends of your paper together and made a cylinder. Could you still color every map on the surface of a cylinder with only 4 colors?

Coloring a Möbius Strip

1. A Möbius strip is a funny shape. It’s like a cylinder but it only has one face, and one edge. You can make it by giving a strip of paper a half-twist, and then taping the two ends together.
2. Make a Mobius strip and try to color the map with only four colors. Can you do it?
