Grade 5

Creating a Dichotomous Key

Major Topic and SOL **Classification of Living Organisms**
Science SOL 5.1 a

Length of Lesson **45 min- 1hr**

Major Understanding:

- Organisms can be grouped and subdivided based on physical attributes.

Essential Questions:

- How can these shells be grouped?
- Once they have been grouped, how can the groups then be divided into smaller groupings?

Student Objectives:

- The students will create a dichotomous key based on their shell classifications.

Bloom's Taxonomy Skills	**21st Century Learning Skills**
• Evaluating • Analyzing • Creating	• Critical Thinking • Problem Solving • Communication • Collaboration

Assessment Evidence

Performance Tasks

Students will

- Create a dichotomous key by grouping and then subdividing a selection of shells based on physical characteristics.

Other Evidence

- Students will work collaboratively and discuss the reasons for their criteria in creating the groupings.

Technology Promethean Board, projector, lap top

Lesson Contributed by: Christina Wade
Funded through 2012 Mathematics and Science Partnership Grant, INSPIRS

Internet Resources

- http://www.biologyjunction.com/dichotomous_keying.htm

Supplies/Materials:

- Hand lens (1 per student)
- an assortment of shells
- blank paper

Lesson:

Engage:

- Ask students if they had to break their classroom up into groups how would they do it, what types of groups would they have? Have the students move into those groups.
- Then ask the students to find a way to break the groups that they have created into smaller groups; stress that all the students in the smaller groups must share similar characteristics with other students in the same group.
- Once the students are in smaller groups ask for the criteria that they used for creating their new group. If there is more than one student left in a group, ask students how they would continue to break their groups into smaller groups.
- Have the students return to their seats and show them using a dichotomous key how their groups would break down.

Explore:

- Introduce the website to the class showing them an example of how a dichotomous key should look.
- Separate the students into groups and give them a selection of shells. Have the students come up with two separate groups of shells that have similar characteristics.
- Have the students write down the characteristics that make these two different groups, model how to do this so that the students will have enough room to continue breaking their groups down to create a dichotomous key (student examples attached).
- Instruct the student to continue breaking down their groups and recording the similarities and differences between their groups.

Explain:

- Once everyone is finished, have the groups explain their thinking behind why and how they decided to separate their shells.

Elaborate:

- After everyone has listened to each others' reasoning, ask the groups to try to come up with alternative criteria to sort their shells.
- Then have each group share while making a list.
- Discuss how this process is used in real life by scientists.

Evaluate:

- Have the students then rotate groups and see if they can follow the dichotomous key created by the original group to classify the shells into the same groups.
- Informal observations by the teacher will be noted by the teacher during group work.

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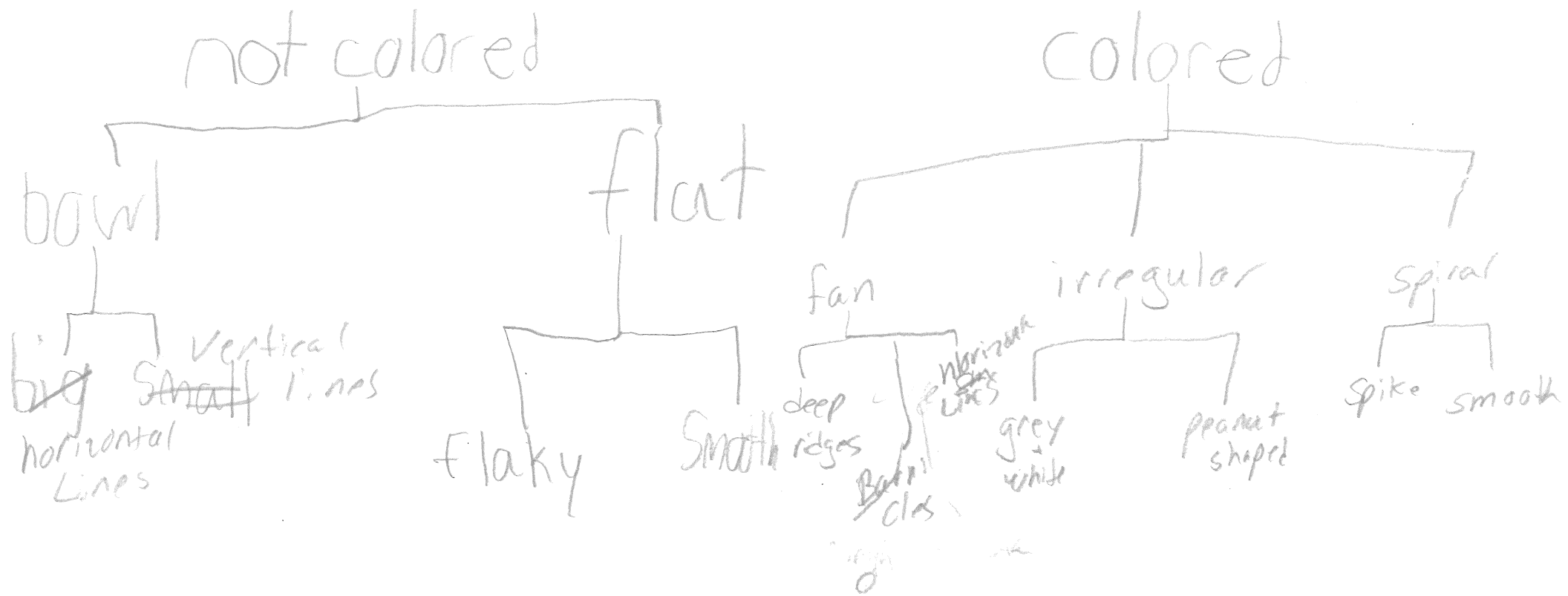
not colored
colored
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big
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vertical lines
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flaky
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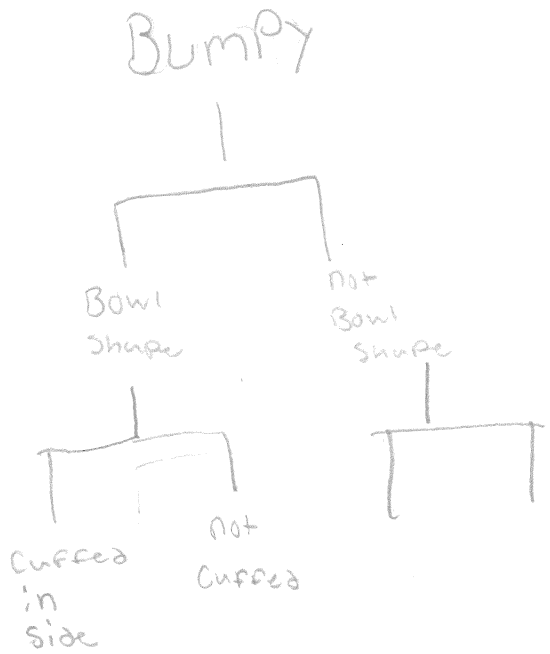
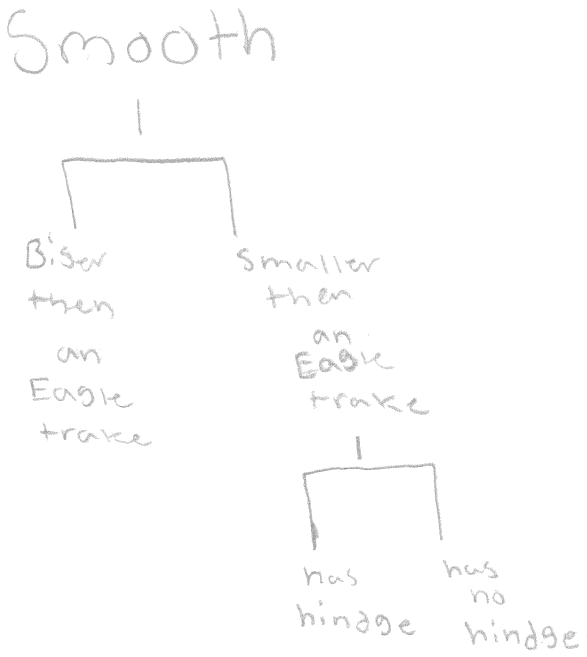
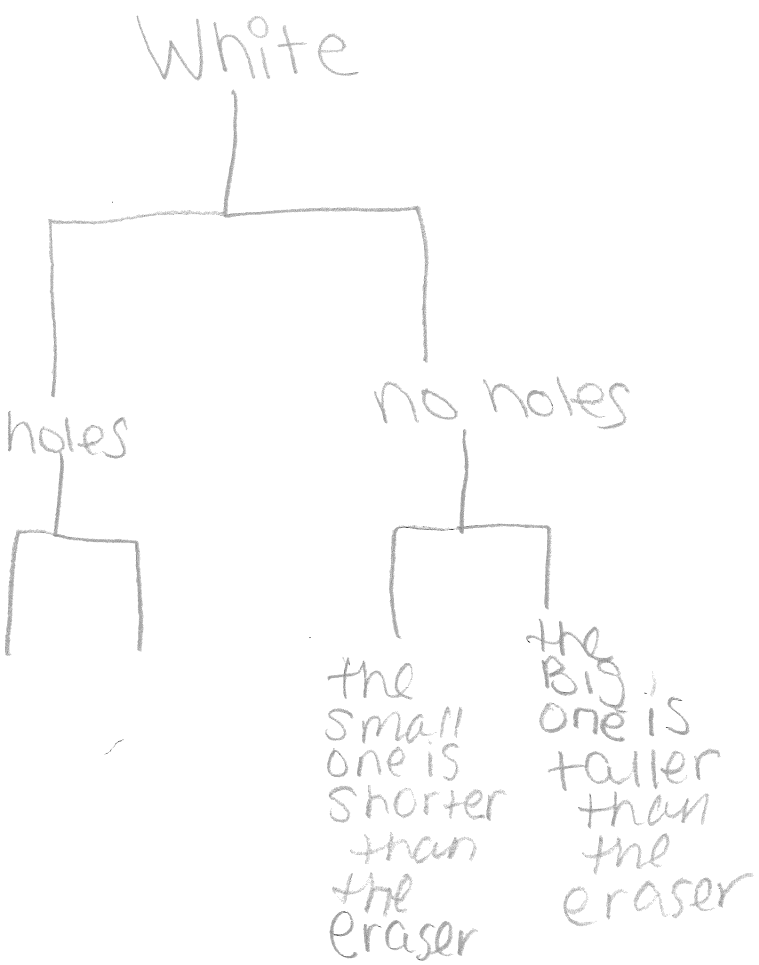
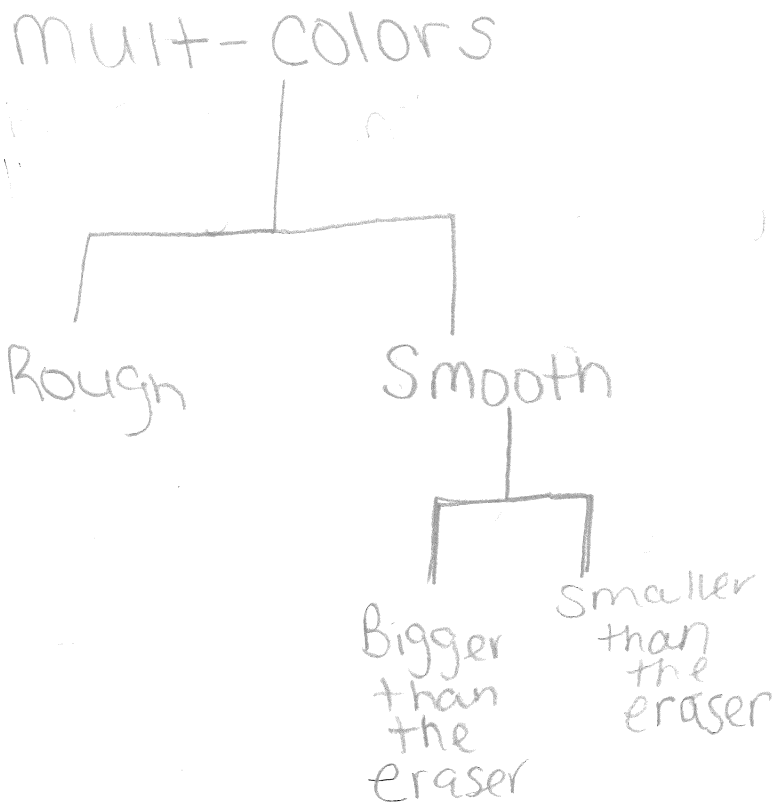
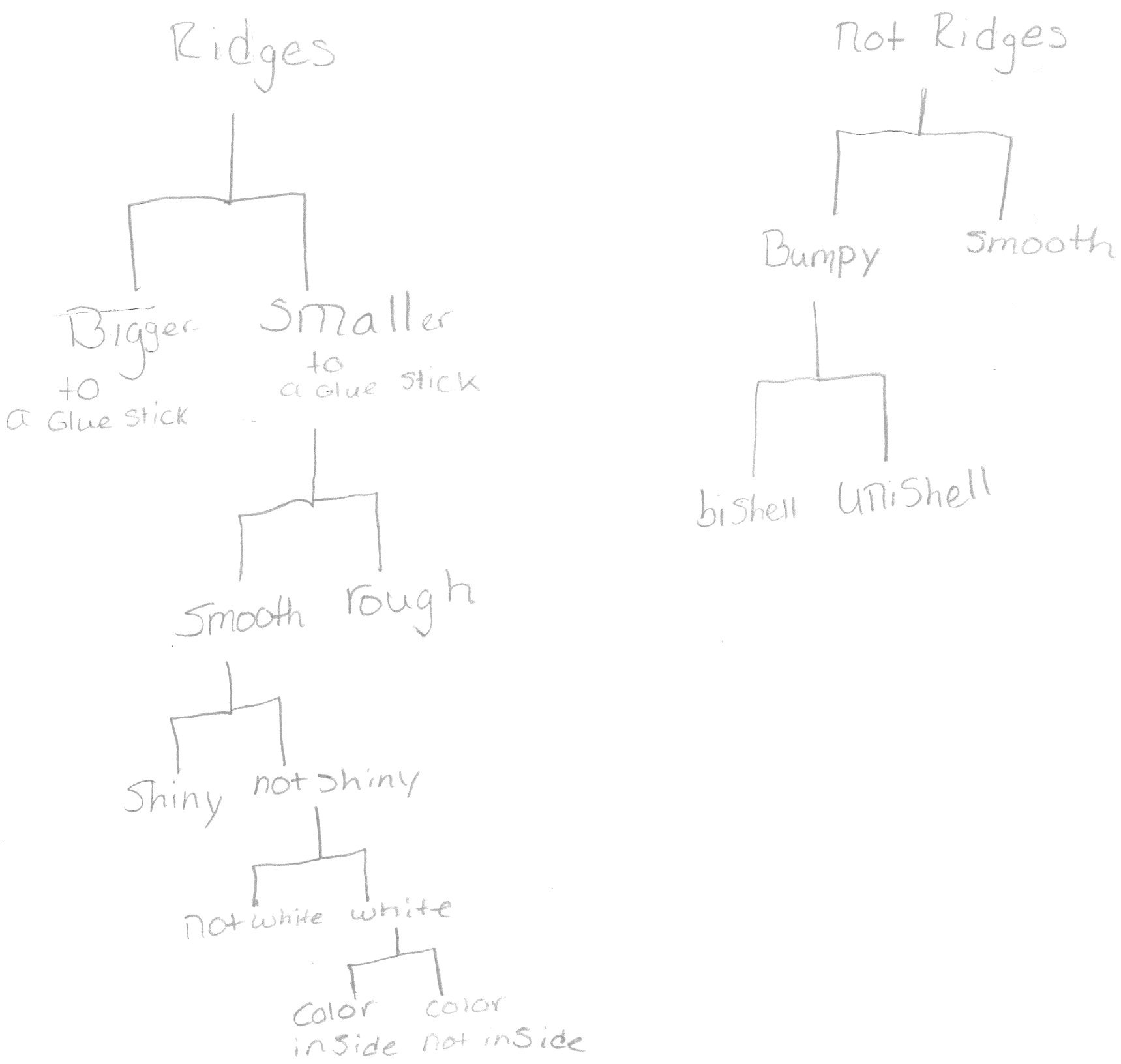

Bumpy
Bowl Shape
Not Bowl Shape
Cuffed in side
Not Cuffed


Smooth
Biger then an Eagle trake
Smaller then an Eagle trake
has hindge
has no hindge


White
holes
no holes
the small one is shorter than the eraser
the Big one is taller than the eraser


mult-colors
Rough
Smooth
Bigger than the eraser
Smaller than the eraser


Ridges
Bigger to a Glue Stick
Smaller to a Glue Stick
Smooth
Rough
Shiny
not Shiny
not White
White
Color inside
Color not inside
Not Ridges
Bumpy
Smooth
biShell
uniShell