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# Using and Creating a Dichotomous Key

5Es Lesson by Rachel Teller

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## *National Science Standards*

Content Standards: Level 5-8

### *Unifying Concepts and Processes*

- > Systems, order, and organization
- > Evidence, models, and explanation
- > Change, constancy, and measurement

## *Background*

A [dichotomous key](#) is a tool that can be used to identify objects in a group through a process of answering yes/no-type questions about the objects. The term dichotomous means ‘divided into two parts.’ Remind the students that they have already used a dichotomous key if they have ever played the game ‘20 Questions.’ In this activity, the students will have the opportunity to examine an interactive graphic key on sea turtles and then create their own dichotomous key on a new group of creatures.

## *Materials*

For this lesson, you need realistic models of the 8 different species of marine turtles that have accurate coloration and the correct number of scutes on carapace and plastron.

MarineLab’s Leave Only Bubbles Marine Science Curriculum Supplies (1.800.741.1139) has a set for \$7.95 (Code: VM31SET) that is also sexually dimorphic (you can tell the males from females by tail length- adult males have a long tail; juveniles, sub-adults, and females have short tails). I purchased 2 sets and had a class of 30 form pairs, and together each pair identified one model turtle.

## *Activity*

**ENGAGE** Familiarize the students with the parts of a sea turtle (provided) by explaining they are going to learn ‘college words.’ Help them understand that they already know many of these words: Where is the margin of their paper, and where are the marginal scutes? What is a lateral pass in football, and where are the lateral scutes? Where is the median of the highway, and where are the medial scutes?

**EXPLORE** Ask the students to form pairs and use the dichotomous key provided to identify the model turtle they are given. The names are on the bottom of the ones in the set from MarineLab- cover them with duct tape.

**EXPLICATE** Ask the groups to discuss their identification results with the class after they have checked the accuracy of their decision by removing the piece of tape.

**ELABORATE** Tell the students a new population of butterflies have been discovered, living over the Sargasso Sea, and that the expedition leader has called on them to create a dichotomous key to differentiate between the species, which share many traits. Provide each student with the butterflies to key (provided) and ask them to cut out the six species and create a key using the worksheet and blank dichotomous key flow chart, both provided.

**EVALUATE** Ask pairs of students to trade keys and creatures and try to follow each other’s keys to identify the species. Discrepancies should be discussed and resolved so each student has a working key when they are finished.