

Taste and Teach

February - Herbs



Five **Fun Facts** About Herbs!

- California is the largest cilantro producing state with annual production exceeding 56 million pounds.
- Ventura, Imperial, and Monterey counties lead the state in cilantro production.
- Oregano was introduced to the United States by soldiers returning from Italy after World War II.
- The word oregano comes from the Greek, meaning “joy of the mountain.” It was believed Aphrodite, the goddess of love, grew it on Mount Olympus.
- Heat diminishes the flavor of fresh herbs, which is why dry herbs are often used in cooking.

Five **Fun Teaching Ideas!**

- Make your own herbal infusion! See simple instructions and other activities in the *What's Growin' On?* student newspaper.
- Watch this video on Herbs from CFAITC:
<https://www.youtube.com/watch?v=AqltTu4xlG8>
- Explore the geographic regions in The Wonderful World of Herbs activity included in the lesson plan From Start to Finish: Producing, Preparing, and Preserving California Specialty Crops in the Classroom.
- Use the guidelines on the back of the Herbs Fact and Activity Sheet to lead the lesson on transforming fresh herbs to dried herbs.
- Download or request a copy of From Start to Finish: Producing, Preparing, Preserving. This unit contains three lessons for grades five through eight.
https://learnaboutag.org/resources/learn_crops/

Explore all the great herb resources in this section!



Herbs

Information compiled by California Foundation for Agriculture in the Classroom

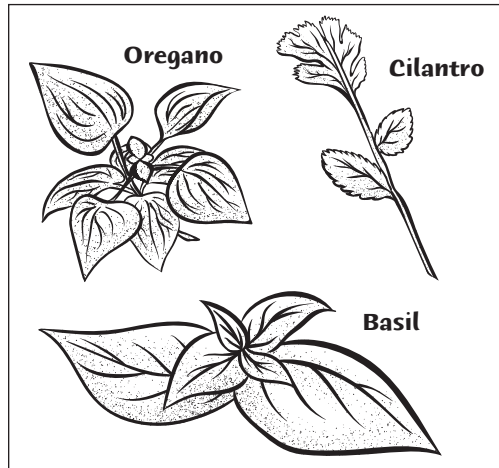
How Produced – Herbs are plants useful for culinary, cosmetic, industrial, medicinal, landscaping, decorative, and fragrance purposes. Both fresh and dried herbs may be used for culinary purposes. Additional purposes for processed herbs include décor, essential oils, teas, dyes, and cosmetics. Herbs are among some of the easiest plants to grow. They require plenty of sunlight and typically grow well in most soils.

Oregano – Oregano has purple flowers and spade-shaped, olive-green leaves. Oregano seeds are planted in greenhouses for 6-8 weeks before being transplanted to the field in spring. A perennial herb, with creeping roots, oregano requires some irrigation, but once established it requires very little water. Well drained soil is ideal, but it does not require especially fertile soil. Oregano is ready for harvest 45 days after planting, before full flower. Oregano is harvested by hand 4-6 times per year. If oregano is harvested early in the morning, the need for cooling is minimized. Oregano intended for the fresh market is kept in cold storage, while oregano intended for the dry market is transported to a dehydrator.

Cilantro – Cilantro leaves are light green, feathery, and flat. While the leaves are used as an herb, the dried seeds, called “coriander,” are used as a spice. Cilantro seed is grown year-round—in the winter in the desert and in the summer along the coast. Extremely hot weather may cause plants to “bolt,” or produce flowers prematurely. Cilantro matures in 40 to 45 days. It is often used as a rotation crop; however, some growers may double-crop each year. Cilantro has a relatively shallow root system and thrives on frequent, short irrigations. It is commonly grown in high-density planting on 80-inch wide beds that are sprinkler irrigated. Cilantro can be harvested by hand and sold in bunches to be used as a fresh herb or mechanically harvested and loosely packed into totes. Once cut, cilantro is immediately cooled and kept in cool storage.

Basil – Basil leaves are glossy and oval-shaped, with smooth or slightly toothed edges. Basil is directly seeded or transplanted to the field in late spring. Most growers use drip irrigation to water basil plants regularly. Basil is a warm season herb, and is harvested from March through mid-November. The timing and method of harvest depends on the use of the herb. For dried basil leaves, the plant is cut just prior to appearance of flowers. To produce essential basil oil, the plant is harvested when the flowers are in full bloom. Fresh

basil is typically harvested several times during the growing season. For the fresh market, leaves are washed and stems are packed in bulk boxes in the field and transferred to cold storage rooms. Once transported to the packinghouse, the herb is hand-sorted into plastic clamshells for retail sales. For the dried herb, low temperature drying of the leaves under forced air is used to retain maximum color.



History – The use of plants as herbs has been important to all cultures since before history was recorded. For thousands of years, tribal cultures have used wild and cultivated herbs for medicinal and food purposes. Historians have found documentation that suggests that hunters and gatherers wrapped meat in the leaves of bushes, accidentally discovering that this process enhanced the taste of meat, as did certain nuts, seeds, berries, and bark.

Evidence of early herb gardens dates to Europe in the Middle Ages. Egyptian schools of herbalists have existed since 3000 B.C. Some herbal benefits are symbolic. For example, basil was given to those who needed strength to endure fasting, while rosemary was given to others for remembrance.

Commodity Value – California leads the nation in herb production. In 2016, the value of fresh market organic herbs was approximately \$9.4 million, while the value of organic dry herbs was approximately \$250,000. California is the largest cilantro producing state with annual production exceeding 56 million pounds. The United States produces approximately 200 billion pounds of herbs and spices per year.

Top Producing Counties – Ventura, Imperial, and Monterey counties lead the state in cilantro production. Individual county data is not available for oregano and basil.

Nutritional Value – Most herbs are highly nutritious, but the benefits are not particularly relevant since they are consumed in limited quantities. Oregano, cilantro, and basil are all good sources of dietary fiber, zinc, and calcium. The essential oils produced from these herbs may be applied topically or used aromatically for a variety of medicinal benefits.

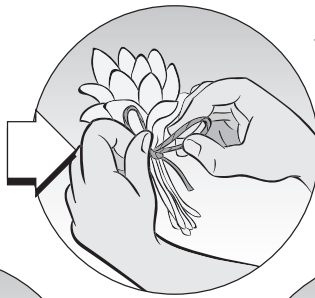
For additional information:
UC Master Gardener Program
Website: mg.ucanr.edu

Herbs Activity Sheet



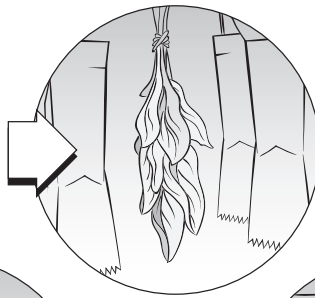
Procure

Cut fresh herbs from your garden or purchase from the grocery store.



Tie

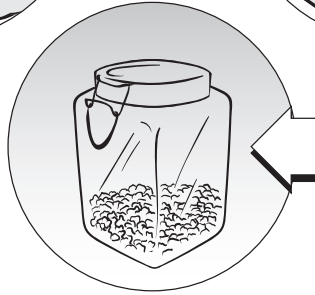
Bundle small bunches of herbs with string. Large bundles may develop mold.



Hang

Hang the bunches up to dry, leaves downward, covered loosely with thin paper bags.

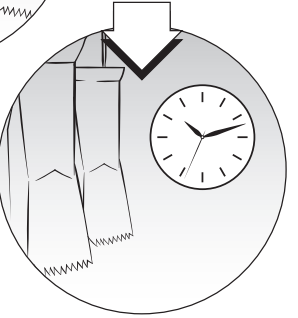
Store
Place in an airtight glass container for up to one year.



Crush
Harvest dry leaves, discarding the stems. Gently break leaves into smaller pieces.



Wait
Allow 7 to 10 days to dry, depending on the size of the bunches and humidity.



Lesson Ideas

- Dry herbs to make a loose-leaf tea.
- Research the medicinal properties of different herbs.
- Create nature prints by using herbs and sun-sensitive fabric or paper.
- Harvest and crush seeds from a cilantro plant to make the spice coriander.
- Make a woven lavender wand.
- Taste and describe different varieties of the same herb.
- Use herbs to make your own potpourri.
- Compare storage methods of fresh herbs.
- Plant your own mini-herb garden in a container.
- Classify herbs by leaf shape, color, and texture.

Fantastic Facts

1. The word oregano comes from the Greek, meaning "joy of the mountain." It was believed Aphrodite, the goddess of love, grew it on Mount Olympus.
2. Cilantro was brought to North America by the English in 1670.
3. Heat diminishes the flavor of fresh herbs, which is why dry herbs are often used in cooking.
4. Oregano was introduced to the United States by soldiers returning from Italy after World War II.
5. Some people may be genetically predisposed to dislike the taste of cilantro.
6. In ancient history, basil was used to embalm mummies.
7. Cilantro seeds are called coriander, which is a spice that has its own unique flavor.

Lesson Plan: Making Herb Butter

Introduction: Butter has long been used as a spread and as a cooking fat. In fact, approximately a third of the world's milk production is devoted to making butter. To make butter, the cream is agitated (stirred up) so that the fat molecules get shaken out of position and clump together. Eventually, after enough agitation, the fat molecules clump so much that butter forms. In this lesson, students will make their own herb butter.

Objective: Students will understand how churning separates the butterfat (the solids) from the buttermilk (the liquid).

California Standards: NGSS: MS-PS1-1, MS-PS1-4; ELA CC: RST.6-8.3

Materials: Heavy whipping cream, finely chopped herbs of your choice, small liquid-tight container with lid, plastic knives, crackers

Procedure:

1. Fill the container halfway with heavy whipping cream and add $\frac{1}{4}$ teaspoon of herbs.

2. Close the container and begin shaking. The faster you shake it, the faster you make it.
3. As you shake, you will see the cream begin to thicken.
4. Keep vigorously shaking until you see the liquid has separated from the solid.
5. Once you have butter, STOP SHAKING (if you keep shaking the butter will melt). Drain and discard the remaining liquid.
6. Spread butter over crackers and enjoy.
7. While enjoying your butter, discuss how long it took for the butter to form.
 - What variables cause the butter to form more quickly?
 - What is happening at a molecular level?
 - What would be the quickest or most efficient way to turn cream into butter?

Leaf it to Herbs

Herbs in a Cup

Tea is a beverage prepared by pouring hot water over dried leaves from *camellia sinensis*, also known as tea plant. The plant's leaves can be processed in different ways to produce the three major types of tea: black, green, and oolong. Hot beverages can also be made from herbs such as peppermint, rooibos, and chamomile. These beverages are sometimes called "tea" although they are actually herbal infusions that do not contain leaves from the tea plant.

California leads the nation in herb production - plants with leaves, seeds, or flowers used for flavoring, food, medicine or perfume. Here are just a few popular ways to use herbs.

Pricey Plants

Saffron, an herb derived from the crimson dried stigma and styles (called "threads") of a crocus flower, is one of the most expensive herbs in the world. The yellow powder is often used for flavoring and adding vivid color to a variety of dishes.

Activity The price per pound begins at \$1,500 and only goes up. If there are 300 threads in one gram of saffron, what is the price per thread?

Standard: CC Math 4.MD.A.1

Did you Know?

Tea is the world's most widely consumed beverage, after water.

Make Your Own Herbal Infusion

Make your own herbal infusion. Tea is typically brewed at a ratio of 3 grams dried herbs to 300 milliliters water. Research and choose three different herbs to create a unique herbal blend. Use a digital food scale to carefully measure the mass of each herb as you add it. Record the mass of each herb on a separate piece of paper. Next, convert the mass to percentage (mass in g / total g x 100 = %) and degrees (° x 100 / 360 = degrees). Use a protractor to create a circle graph, labeling each section appropriately.

Standards: CC Math: 3.MD.A.2, 4.MD.C.6, 6.RP.A.3.C

Herbs Around the House

Herbs are useful in insect repellents, air fresheners, soaps, and cleansers. Even your family pet may benefit from herbs.

Insect repellent: Insect repellents are substances that are applied to clothing or skin to keep insects away and prevent bites. There are numerous herbs that act as natural insect repellents, including citronella and lemon balm.

Air freshener: Aromatic herbs can be used to make a room smell fresh and clean. Dried herbs can be placed in decorative bowls (potpourri) or mesh bags (a sachet).

Soap: Soaps made with chamomile help soothe skin irritations, like rashes and sunburn. Lavender is added to soap to promote relaxation and a good mood.

Pets: Many people know that cats love catnip, but did you know dogs love lemongrass? Lemongrass aids in digestion, while herbs like chamomile and lemon balm have a calming effect on pets. Of course, always ask your parent or veterinarian before feeding anything to your pet.

Activity Research herbs that are used to repel insects and design an experiment to compare natural repellents and synthetic repellents. Plan and conduct an investigation which generates data, and share your findings with the class. Standard: NGSS 3-5-ETS1-3.



Learn more about growing your own herbs at home by scanning this QR code.

Herbs in Cooking

For thousands of years, tribal cultures used wild and cultivated herbs for food purposes. Historians believe hunters and gatherers wrapped meat in the leaves of bushes, accidentally discovering that this process enhanced the taste of meat. Today, herbs are often used in traditional dishes around the world.

Rosemary is a culinary herb that is rich in vitamins A, B, and C, as well as minerals such as potassium and iron. It is pungent, and often used for flavoring meats. Ask an adult to add rosemary to your next chicken dinner. You can even soak rosemary stalks in water and use them to skewer meat for the barbeque, which adds extra flavor.

Thyme dates back to medieval times when it was commonly grown in pots and gardens. Thyme is an herb used in traditional Italian, African, and French cuisines. Add a bundle of fresh or dried thyme to soups and stews.

Chives are a small grass-like herb first cultivated by Europeans during the Middle Ages. It is a member of the onion family, but unlike the onion, the leaves are harvested instead of the bulb. Chives add just a hint of onion to your cooking, and many people enjoy topping potatoes with chives.



LESSON TITLE:

TASTY TESTING

Grade Level: 5-8
TWO 50-MINUTE LESSONS

LESSON OBJECTIVES:

- Students will know the geographic regions where basil, oregano, and cilantro have cultural significance.
- Students will understand the role of evaporation in herb drying.
- Students will recognize the different properties of dried and fresh herbs.

STANDARDS

- NGSS: MS-LS-1.8: Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
- CA History-Social Science: 6.1.2: Identify the locations of human communities that populated the major regions of the world and describe how humans adapted to a variety of environments.
- CC Math: 5.G.1: Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates.
- CC Math: 5.G.2: Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
- CC ELA: Grades 5-8.1: Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- CC ELA: Grades 5-8.7: Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

TASTY TESTING

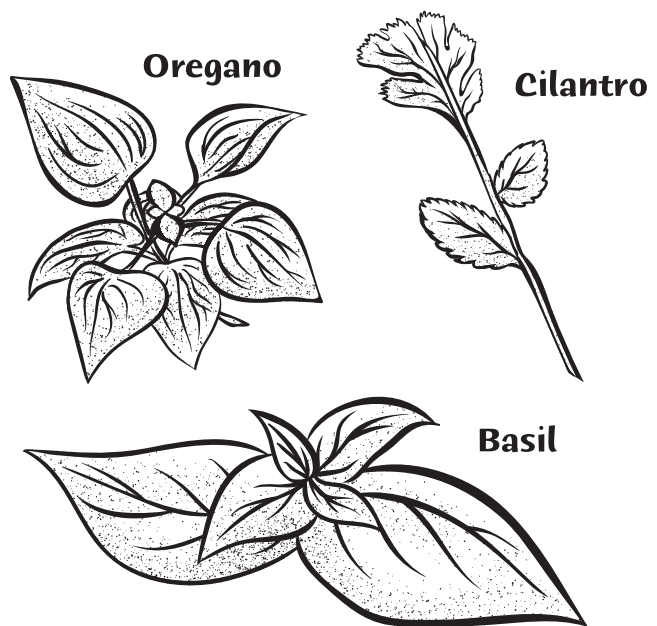
MATERIALS

- Chart paper or blackboard, with markers or chalk
- Student text: *The Wonderful World of Herbs* (one per student)
- Ruler (one per student)
- Handout: *Herb Observation Rubric* (one per student)
- Dried herbs: oregano, cilantro, and basil
- Fresh herbs: oregano, cilantro, and basil
- Small sampling cups (six per student or pair of students)

BACKGROUND INFORMATION

Herbs are plants useful for culinary, cosmetic, industrial, medicinal, landscaping, decorative, and fragrance purposes. They are different than spices. Herbs are typically leafy green or flowering plants, while spices are dried seed, bark, berries, or fruit and are often ground.

The use of plants as herbs has been important to all cultures since long before history was recorded. Hundreds of tribal cultures have used wild and cultivated herbs for religious, medicinal, and food purposes for thousands of years. As civilizations developed so did the knowledge for the use of herbs. Today, culinary herbs are often used in dried and fresh forms. Fresh herbs can be found in grocery stores or backyard gardens, but have a relatively short shelf-life. Dried herbs allow for storage and year-round availability. In this lesson, students will learn about three specific herbs that are commonly found in student kitchens: basil, oregano, and cilantro.



PROCEDURE (PART 1)

1. Ask learners:

- *Which herbs does your family cook with at home?*
- *What herbs are in foods you like?*

2. Record responses on chart paper. At this point, students may respond with herbs or spices. That's okay, accept all responses. Record responses in two columns, with spices on one side and herbs on the another. Do not label the columns. After adequate time brainstorming, ask students, "*What heading would you place above these columns?*" Explain the difference between herbs and spices. Tell students that today they will be exploring herbs around the world.

3. Distribute the student text titled, *The Wonderful World of Herbs*. Students will read the text and answer related questions. Allow students 5-10 minutes to complete the fill-in-the-blank portion of the activity.

4. Review answers and facilitate related discussion.

5. If necessary, demonstrate how to find coordinates on a map. As a class identify the x-axis (the equator) and the y-axis (the prime meridian). Review the points of a compass and their related quadrants. Students will integrate the information from the text with the latitude and longitude coordinates to plot and label each location on the map. Allow 10-20 minutes to complete the activity.



6. Have students share the name of each country plotted on the map, popcorn-style. Remind students that the use of plants as herbs has been important to all cultures since before history was recorded. Tell students that tomorrow they will use their senses to compare the herbs they learned about in today's lesson.

7. Collect the handouts and assess for completeness and accuracy.

PROCEDURE (PART 2)

1. To prepare for this activity, place a small sample of each dried herb and each fresh herb in six separate tasting cups. Label the fresh herbs with their common names. Label the dry herbs A (for cilantro), B (for oregano), and C (for basil). Prepare a set for each student (or pair of students).

2. Explain to students that they will use their senses to gather information about herbs. Describe how when you taste something, approximately 10,000 taste buds respond to the food stimuli by sending messages to the brain. In addition, our olfactory system (our sense of smell) sends messages to the brain. These messages integrate to create our perception of flavor. Our taste experiences inform our behavior and are often stored as memories.

PROCEDURE (PART 2) CONT.

3. Guide students to compare the fragrances of fresh and dried herbs. Instruct students to match each fresh herb to the herb's dried version, using only their sense of smell. For example, instruct students to smell fresh basil. Then, smell all three dried herbs and attempt to identify which is dried basil. Repeat this process for cilantro and oregano. Reveal the identity of the herbs (A: cilantro, B: oregano, C: basil). Direct students to label their previously unknown samples correctly.
4. Distribute the *Herb Observation Rubric*. Review the rubric with the class, and emphasize the importance of providing detailed and descriptive observations. They will taste each sample individually and record their observations in the appropriate cell. Have students complete their rubric.
5. After completing their observations, discuss:
 - a. Favorite or least favorite herbs of the six samples.
 - b. Similarities and differences between dry and fresh herbs.
 - c. Similarities and differences between different herbs.
 - d. Strength of flavor in dry and fresh herbs.

VARIATIONS

- Lead students through the process of drying their own herbs. After cutting fresh herbs from the garden, make small bunches with string. Hang the bunches up to dry, leaves downward, covered loosely with thin paper bags. Allow seven to 10 days to dry, depending on the size of the bunches and humidity.
- Use an online mapping tool to plot coordinates for map activity.

EXTENSIONS

- Instruct students to find a family or cultural recipe that includes basil, oregano, or cilantro to share with the class. Bind recipes together to create a class cookbook, or bring prepared dishes to share in a class potluck.
- Use a conversion chart to convert fresh herbs to dry herbs in your favorite recipes (or dry to fresh).
- Use photo chromatic material to capture herb shadows outside.
- Plant a variety of herbs, including basil, cilantro, and oregano in a school garden or classroom planter box.

STUDENT TEXT:

The wonderful world of herbs

The use of plants as herbs has been important to all cultures since long before history was recorded. Hundreds of tribal cultures have used wild and cultivated herbs for religious, medicinal, and food purposes for thousands of years.



Native to Arab countries near the Mediterranean region, cilantro made its way along the spice routes in Spain. From there, the Western expansion of the Spanish empire brought new cooking styles and ingredients across the ocean to the “New World.” It continues to be grown in Brazil, Cuba, the Dominican Republic, El Salvador, Costa Rica, Puerto Rico, Mexico, and the United States. Cilantro is harvested in fresh cut bunches, and has a distinct “fresh” flavor. Most salsas that

you dip your chips into contain cilantro as it is a staple herb in Latin America. The seeds of the cilantro plant are dried and appear in spice racks whole or ground with the name of coriander.

Oregano is a culinary herb with leaves that have an aromatic, warm, and slightly bitter taste. This popular herb is commonly used in Italian cooking, mostly in its dried state, as a “pizza sauce herb” but has its origins in Greece. The Romans also used oregano because they enjoyed the taste and found it easy to grow. Their love of the herb helped spread its use throughout Europe and Northern Africa. It is used in the Philippines, Argentina, and throughout Latin America. In Mexico, it can be used to season meats, stews, and soups and the aroma in the leaves is often used to flavor Mexican rice.

Basil has been cultivated for more than 4,000 years. There are more than 200 different varieties of basil. Basil is native to areas in Asia and Africa and grows wild as a perennial on some Pacific islands. Basil was brought from India to Europe through the Middle East in the sixteenth century, and subsequently to America in the seventeenth century. Basil is a popular culinary herb used in many cuisines including Italian and Thai. Italians use a mortar and pestle to grind basil with oil, garlic, cheese, and nuts to make pesto. Pesto is commonly used as a pasta sauce. In Thailand, basil is used to infuse flavor into foods, like the traditional Thai green curry. The herb is added at the end of the cooking process to retain its aroma and flavor.

Herbs have been used to improve the flavor of foods throughout history. It is no different today. Take a trip around the world without even leaving your kitchen—use herbs!

NAME: _____

DATE: _____

CLASS: _____

Fill in the blanks with names of different spices.

USE THE LONGITUDE AND LATITUDE COORDINATES TO PLOT AND LABEL EACH LOCATION ON THE MAP.

1. _____, is an herb that is added to food eaten in this country's culture. (15°N, 101°E).
2. _____, used in pizza sauce, originally had its roots in this country. (39°N, 22°E).
3. Native to Arab countries near the _____ region, cilantro made its way along the spice routes to this country. (40°N, 4°W)
4. The aroma of oregano leaves is often used to flavor _____ in this country. (24°N, 103°W)
5. Known for its “fresh” flavor, _____ is presently grown in countries that border this body of water. (15°N, 75°W)



Answer Key

1. **Basil** , is an herb that is added to food eaten in this country's culture. (15°N, 101°E).
2. **Oregano** , used in pizza sauce, originally had its roots in this country. (39°N, 22°E).
3. Native to Arab countries near the **Mediterranean** region, cilantro made its way along the spice routes to this country. (40°N, 4°W)
4. The aroma of oregano leaves is often used to flavor **rice** in this country. (24°N, 103°W)
5. Known for its “fresh” flavor, **cilantro** is presently grown in countries that border this body of water. (15°N, 75°W)



Herb Observation Rubric

	BASIL		OREGANO		CILANTRO	
	FRESH	DRIED	FRESH	DRIED	FRESH	DRIED
SKETCH What does the sample look like?						
COLOR What is the specific color?						
TEXTURE What does it feel like?						
TASTE What adjective describes the taste?						
FLAVOR How strong is the flavor on a scale from 1-10? 1 is weak, 10 is strong						