

## Daily Lesson Plan (DLP)

<b>Topic:</b> Research species of plants that can be grown in your zone		Day :1
<b>Grade: 4-5</b>	<b>Lesson Name:</b> Research species of plants that can be grown in your zone	<b>Time :(60 Mins.)</b>

Topic	<b>What are the species that will grow in your zone?</b>		
Weekly key words	Hardiness zones, climatic zone, perennial plants, annual plants, siberian kiwi, heat zone map, etc.		
Seating plan	<input type="checkbox"/> Individual <input type="checkbox"/> Pairs <input type="checkbox"/> Group of 4		
Skill development	<input checked="" type="checkbox"/> Reading <input checked="" type="checkbox"/> Writing <input checked="" type="checkbox"/> Discussion <input type="checkbox"/> Presentation <input type="checkbox"/> Reflection <input type="checkbox"/> Illustration <input type="checkbox"/> Collaboration <input type="checkbox"/> Observation <input type="checkbox"/> Research <input type="checkbox"/> Other (Specify)		

<p><b>Objectives:</b></p> <p>➤ <b>The students will be able to:</b></p>	<ul style="list-style-type: none"> <li>➤ Develop knowledge about growing zones</li> <li>➤ Learn about the species to be grown in the growing zones</li> <li>➤ Develop the power of knowledge and observation to create a garden by identifying problems and finding the solutions.</li> </ul>
<p><b>Teaching Resources:</b></p>	<p>Multimedia/projector, laptop, YouTube, writing board, notebook, piece of paper, pen/pencil</p>
<p><b>Teaching Learning Strategies</b></p>	
<p><b>Introduction:</b> 05 mins.</p> <p><b>Icebreaker Activity:</b> Begin the classroom with an interesting activity. Show the following pictures and encourage the learners to identify and name them one by one. Encourage them to describe each season in 4-5 sentences. Take their responses and give feedback.</p> <div data-bbox="600 605 1312 750" data-label="Image"> </div> <p><b>Methodology:</b> 20 mins.</p> <p>Open the following link to show the video to the students, using a projector, multimedia, or a laptop.  <a href="https://youtu.be/Bulb5g3wKTI">https://youtu.be/Bulb5g3wKTI</a></p> <p>Hardiness zones are helpful, but for beginner gardeners, they can often confuse you more than they clarify. They're based on the average annual minimum temperature, which gives you SOME info but not ALL the info you need to know what to plant and when to plant it in your garden.</p> <p>Open the following link to show the video to learn about plant hardiness and what zone you live in. A plant's hardiness is essential to know when choosing plants for your garden because it indicates its ability to survive in your local climate. There are thirteen hardiness zones in the United States, and there's a map in this video to help find your zone. Know your zone when you check the plant's tag or the back of the seed packet.  <a href="https://youtu.be/oPi8a48Adno">https://youtu.be/oPi8a48Adno</a></p> <p><b>Group Work:</b></p> <p>Make each group of 4 students and encourage them to discuss the content shown in the video. (10 mins.)</p> <p><b>While gardening, it is important to consider the climate of the area you live in so that you would be able to determine what kind of vegetables and fruits to plant. The gardener can easily assess the climate of their region by consulting a climate zone map for plant growth and production.</b></p>	

### **What are Plant Hardiness Zones?**

A hardiness zone is a geographical area with consistent climate conditions that allow specific plants to grow and thrive. The U.S. Department of Agriculture maintains the USDA plant Hardiness Zone map, which allows gardeners and farmers to determine which plants are likely to flourish throughout specific regions of the United States. The USDA map is separated into 13 growing zones. Each USDA zone represents a 10-degree range of temperatures based on the zone's average annual minimum winter temperature.

### **Why are Hardiness Zone Important?**

It is necessary that gardeners take hardiness zones into account when growing fruits, vegetables, and flowers because not all plants can grow in every type of climate. Temperature is the ultimate arbiter of plant life. When temperatures go below freezing point, plants stop growing. Annual plants shrivel up and die, while perennial plants pull all of their energy and resources inward and prepare for the winter dormant season. But some perennial plants are more cold-hardy than others. Therefore, if you live in a cold area with extreme minimum winter temperatures, it is good that you grow perennial plants that are capable of surviving colder temperatures.

For example: in southern California, tropical tree species keep pumping out bananas, papayas, and mangoes throughout the mild winters. On the contrary, in Alaska, the temperature may fall to -50 degrees and you are bound to stop fruit crops from the tundra, such as the Siberian kiwi. In a broader sense, your planting zone requires which type of plants can survive a typical winter where you live.

### **How to use Hardiness Zones when Planting a Garden:**

1. **Find your Hardiness zone:** The USDA maintains an online hardiness map that is searchable using zip code and also features to locate the zone you live in. However, the planting zone is not always perfect, and different microclimates exist in hardiness zones. Microclimates contain variations in wind, soil, or moisture that can affect the plant growth in that location.
2. **Shop for perennials that thrive in your zone:** Sometimes while shopping for plants, you will find a cold hardiness zone labeled with numbers such as zone 4-8, indicating both lower and upper climatic thrive zone. Some do not like it too hot. The higher number reflects the region of the country where a minimum amount of cold weather is needed for the crop. This varies within the species. Such as Bing cherries are rated for zones 5-9, but black cherries are bound to zones 5-7 as they require a long winter to produce fruit.
3. **Shop for annuals that thrive in your zone:** The USDA provides critical information for all perennials, but you will find annuals labeled with zone numbers. All annuals die at 32 degrees but there are some that require longer frost-free growing seasons. For this, the USDA provides a rule of thumb---- the longer the number, the longer the growing season.

**There are 13 Hardiness zones ranging from the coldest zone to the warmest one. Each zone will be discussed in detail. All zones are measured in Fahrenheit and based on the lowest average in each zone.**

**Zone 1 (-60 to -50):** this is a good climate for tomatoes, beans, sunflowers, and lily of the valley.

**Zone 2 (-50 to -40):** Carrots, onions, poppies, thrive in zone 2.

**Zone 3 (-40 to -30):** Asparagus, cucumber, garlic, and aster all grow well in zone 3.

**Zone 4 (-30 to -20):** eggplant, pumpkin, iris, and daylily thrive in this zone.

**Zone 5 (-20 to -10):** this zone is ideal for radishes, spinach, honey crisp apples, and lavender.

**Zone 6 (-10 to 0):** **winter squash,** Winter squash, butter lettuce, oregano, and coriander all flourish in this zone.

**Zone 7 (0 to 10):** Try planting turnips, arugula, peony, and forget-me-nots if you live in Zone 7.

**Zone 8 (10 to 20):** Zone 8 is the perfect climate for watermelon, okra, lantana, and sage.

**Zone 9 (20 to 30):** Broccoli, avocado, mandarin oranges, zinnias, and dahlias grow well in Zone 9.

**Zone 10 (30 to 40):** This is a good growing environment for peanuts, ginger, agave, and geraniums.

**Zone 11 (40 to 50):** Beets, mangos, begonias, and chives are especially productive in this zone.

**Zone 12 (50 to 60):** Grow crops like summer squash, hot pepper, borage, and heliconia if you live in Zone 12.

**Zone 13 (60 to 70):** This climate is ideal for African breadfruit, Amazon tree-grape, bush beans, and rosemary.

### **What is a Heat Zone Map:**

It is not just cold that stops plants from growing. Some plants also don't grow well in high temperatures, some even wither away in the heat. For this reason, the American Horticulture Society's heat zone map is devised that has 12 zones. Each zone is based on an average number of days per year above 80 degrees.

### **Activity: (30 mins.) (Group Work)**

1. Ask students to think about the many times a day they touch or eat things that come from plant materials. Our world consists of an unimaginable number of products originating with plants. Students are likely touching several as they sit in a chair and take notes in their notebooks. Plants are a major part of daily life in several forms.
2. Follow the shared link for zones guidance. <https://gilmour.com/planting-zones-hardiness-map>
3. As a class, make a list of plant products found in the classroom.
4. Ask students to:
  - Identify why plants are critical for all life on Earth.
  - List plant products found in your everyday world.
  - Explain why certain plants are grown in certain regions of the United States.
  - Compare and contrast the growing conditions in various areas of the country.

**Wrap up (5mins.):** Wind up the lesson by asking the students randomly to share some vegetables and fruits cropped in zone 5 and zone 13.

**Home Assessment:**

The students will do the worksheet as homework.

**Worksheet (Day1)**

**Lesson Evaluation:**

- Teacher was able to accomplish all aspects of the lesson well ☐
- Teacher was not able to ..... do warm up activity ☐,
- develop lesson plan well ☐,
- do the learning activity ☐,
- do wrap up ☐,
- accomplish lesson objective ☐,
- manage time well ☐,
- manage class well ☐

## Worksheet Day 1

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Topic: Gardening

Subject: Science

- Get a large wall chart of the United States and have each student add different crops to it in order to summarize crop-growing regions of the United States.

