

# Joint Polar Satellite System

## How to Grow a Seed or Bean

It's Summer!

The Spring showers brought plenty of rain to the trees, plants, flowers and grass. Plants are very important to farmers and scientists. They give us food, air to breathe, and provide homes for life on Earth. During the Summer, farmers and scientists observe their crops to make sure they stay healthy.

Farmers and gardeners must make sure their plants have the right ingredients to stay healthy. Plants need water, sunlight, air, soil and space to grow. Too much or too little of these ingredients will result in an unhealthy plant. Therefore, farmers and gardeners spend the summer making sure their crops stay healthy and green by monitoring them every day.

Did you know satellites can help farmers, gardeners, and scientists observe vegetation health from space? Satellites like the Joint Polar Satellite System (JPSS) can measure the main ingredients of a healthy plant; water, sunlight and temperature around the Earth. The daily weather affects how much water, sunlight, and temperature a farm gets, so farmers keep a close eye on weather data from JPSS. Understanding how the weather changes helps farmers grow and harvest more food.

JPSS can also provide information on farms with unhealthy plants. If a farm's plants have little water and high temperatures, it may be experiencing a drought. After using JPSS data, a farmer can provide more water to crops or plant new ones. Plus, countries can use this information to predict and plan for a food shortage if large areas of crops are suffering from drought.

Farmers all across the world want to grow and harvest a lot of food. JPSS helps them do just that! Now it's your turn to grow a seed at home!



Plants use sunlight and warmth to produce the nutrients they need and use water to move the nutrients from the soil, through its roots and leaves to help it grow.



A Lima bean sprout after 7 days.

### **Germinate:**

*When a seed or spore begins to grow*

# Grow a Seed or Bean at Home!

## You will need

- Dried bean or seed
- Sealable plastic bag
- Paper towel or cotton balls
- Tape
- Marker
- Water
- Sunlight



## Germinate Your Seed or Bean

1. **Wet** your paper towel or cotton balls with **water**. Squeeze the excess water out so your paper towel is not dripping.
2. **Fold** your paper towel and place your seed or bean inside or on top of the paper towel.
3. **Place** your bean and paper towel inside a sealable plastic bag.  
*Hint: Use more than one seed or bean to increase your chances of germination.*
4. **Close** the plastic bag, but leave a little space open for **air**.
5. **Write** the date on a piece of tape with a marker and tape your plastic bag to a **sunlit** window.
6. **Watch** your bean grow and record the results!
  - a. Check in on your bean every day. If the paper towel is dry, spray it with some water.
  - b. Once the bean sprout gets too big for the bag, place it in a pot with soil or plant it outside.

Note: This experiment can also be done with a plastic cup, soil, and water.



A Lima bean sprout after 9 days.



A Lima bean sprout after 9 days.



Learn more about JPSS at  
<https://www.nesdis.noaa.gov/jpss-education>



### JOINT POLAR SATELLITE SYSTEM (JPSS)

JPSS is the Nation's new generation polar-orbiting operational environmental satellite system. JPSS is a collaborative program between the National Oceanic and Atmospheric Administration (NOAA) and its acquisition agent, National Aeronautics and Space Administration (NASA).

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