

Problem-Solving Plants



Help students explore ways plants can help solve local environmental and community challenges—and brainstorm their own solution!

Objective

Students will design solutions to help combat real-world challenges that put their community's ecosystem, biodiversity, and/or human health at risk.

Standards

NGSS

MS-LS2-3

Examine cycling of matter in an ecosystem

MS-ETS1-1

Design solutions to problems

MS-LS2-5

Evaluate solutions for maintaining biodiversity and ecosystems

MS-ESS3-3

Minimize human impact on the environment

Time

60 minutes

Materials

Create Community Solutions activity sheet

Enter the Plant Mash-Up Contest



Students will imagine, describe, and draw a plant hybrid that benefits their community. For a rubric, full rules, and prize details, visit [scholastic.com/bloom/contest](https://www.scholastic.com/bloom/contest). Mail entries to: **BLOOM! Plant Mash-Up Contest, Scholastic Inc., ATTN: K. Clark, 557 Broadway, 3rd Floor, 3-214, New York, NY 10012.**

DEADLINE: MARCH 6, 2020

1 Display the headings in step 2 below in a random order on the board. Ask students what the words have in common. Confirm that they're the stages of the plant growth cycle.

2 In small groups, have students draw on their prior knowledge to order and then outline each of the steps. (Alternately, assign each stage to a group.) Review as a class and work together to create definitions (shown below). **Decrease the challenge** by providing prompts at each stage (e.g., what conditions are needed for this stage to begin, then end? What is achieved at this stage?). **Increase the challenge** by making note of energy transfer in each stage.

1 Germination Cell duplication begins under the right conditions for the type of plant: temperature (usually warm, sometimes cold), moisture (the just-right amount), and location (like soil, sometimes water) conditions.

2 Sprouting The primary root emerges to anchor the seed and absorb nutrients from soil.

3 Vegetative Leaves grow and begin to convert light energy into chemical energy that can later be released to fuel the plant's activities (photosynthesis)—plants make their own food!

4 Flowering Ovules, the female reproductive parts of the plant, grow as part of the flower. Flowers use scent and color to attract pollinators.

5 Pollination Ovules are fertilized by pollen, often via pollinators (e.g., insects, birds).

6 Seed Dispersal Fertilized ovules develop into seeds, which are dispersed (e.g., gravity, wind, animals), and the cycle can begin again with germination.

3 Direct student pairs to brainstorm ways that plants are important to humans, animals, and the environment. Then create a class list, such as: food, medicine, habitat, building materials, mental health, paper products, clean air to breathe, atmospheric balance, etc.

4 Challenge the class to identify how plants react differently from other materials to environmental changes (example: When it rains, an asphalt street will start to flood much sooner than a lawn with grass, shrubs, and trees). After students have shared their observations, explain that some of these differences demonstrate that plants don't just give us commodities but can also help address problems in our communities. For example, planting trees can help a city reduce noise and air pollution, and planting a native species in your yard may increase biodiversity.

5 Distribute the Create Community Solutions activity sheet. Students may complete the sheet individually or break into small groups and work together on one issue. **Increase the challenge** by having them expand on their selected solutions with research, then present the best solution they found. Next, have students consider a plant that grows well in your region and think of ways it might be used to solve a problem in your community. Invite students to share their ideas and solutions with the class.

6 Hand out the Plant Mash-Up entry form and send us your students' plant creations! (See bottom left.)

NO PURCHASE NECESSARY TO ENTER OR WIN. Void where prohibited. The promotion is open only to students currently enrolled in grades 6–8 at a public school, an accredited private school, home school in compliance with the laws and regulations of its state/district, or participating in an out-of-school time program in the 50 US/DC and who are residents of the 50 US/DC. Entries may only be submitted by a student's teacher, youth program leader, or his/her parents or legal guardians—submitting individuals must be over 18 (19 in AL or NE) and residents of the 50 US/DC. Only adults listed above may submit entries by uploading them to [scholastic.com/bloom](https://www.scholastic.com/bloom) by 11:59 p.m. ET on March 6, 2020, or mailing them (postmarked by March 6, 2020, and received by March 13, 2020) to Plant Mash-Up Contest, Scholastic Inc., Attn: Kaitlin Clark, 557 Broadway, 3rd Floor, 3-214, New York, NY 10012. All student winners will receive gift codes to [scholastic.com](https://www.scholastic.com) in the following amounts: Student Grand Prize Contest Winner: \$500; Student Runner-Up Contest Winner: \$250; Student Sweepstakes Winner: \$100. Prizes for the adult submitting the winning entries also awarded, see Official Rules for details (Total ARV: \$3,600). For Official Rules, visit [scholastic.com/bloom/rules](https://www.scholastic.com/bloom/rules).