



Jewish National Fund Tu BiShvat in the Schools, 2020/5780

Making the Desert Bloom Facilitators Guide

[Intro to Jewish National Fund and Tu BiShvat](#)

Long before there was Earth Day there was Tu BiShvat, the Jewish New Year for Trees, which falls on the 15th day of the Hebrew month of Shvat. Tu BiShvat marks the time when trees emerge from their winter sleep and begin a new cycle. It is a celebration of spring's rebirth and renewal, an appreciation of the interconnectedness of man and nature, and the marker by which a tree's age is determined.

Tu BiShvat has its roots in the Bible: "On the third day of creation, God created 'seed-bearing plants, fruit trees after their kind, and trees of every kind bearing fruit with the seed in it'" (Genesis 1:11). God then put Adam in the garden to "till it and tend it" (2:15), making humans stewards of the earth.

Tu BiShvat was the date used by farmers to calculate the year's crop yield and determine the tithe that the Bible requires. It also marks the beginning and end of the first four years of a tree's growth, during which it is forbidden to eat its fruit. As the Jewish Arbor Day, Tu BiShvat embodies the strong dedication to ecology, environmentalism, and conservation that Jewish National Fund has championed since its inception in 1901.

Since the time of the Kabbalah, Sephardi Jews, originally from Spain, held a special Tu BiShvat Seder at which they ate 30 kinds of fruit from Israel: 10 whose outsides and insides were both eaten (like grapes), 10 whose outsides were eaten but whose insides were thrown away (like carobs), and 10 whose insides were eaten but whose outsides were thrown away (like almonds). These three groups symbolized the three levels of creation explained by the Kabbalah.

During the early pioneer movement in late 18th and early 19th century Palestine, Jewish pioneers linked the environmentalism of Tu BiShvat with the practice of planting trees in the land of Israel. More recently, Jewish environmentalists adopted Tu BiShvat as the "Jewish Earth Day," with organized Seders, tree plantings, and ecological restoration activities, as a way to express a specifically Jewish commitment to caring for nature and protecting the land.

Since its founding, JNF has planted more than 260 million trees in Israel to protect the land, prevent soil erosion, cultivate the landscape, and preserve vital ecosystems. The trees maintain forest health, combat desertification, protect watersheds,



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and manage water flow. Additionally, they create a “green lung” to combat carbon dioxide emissions in the region. JNF’s success at planting trees in Israel has resulted in naturally expanded forests, transforming the desert into a lush bed of green.

“Tu BiShvat reminds us that no matter what happens, we all have to share this planet and care for it,” said Russell F. Robinson, CEO of Jewish National Fund. “Over the years, Tu BiShvat has taken on the theme of planting trees in Israel, making it JNF’s holiday. Perhaps no other organization is as strongly associated with a holiday as JNF is with Tu BiShvat.”

Enduring Understandings

- Israel’s first Prime Minister, David Ben-Gurion, had a dream of making the desert bloom.
- Our traditional texts describe complex relationships of use, care for, and appreciation between people, trees, and our environment.
- An understanding of the workings of our natural world helps us understand and connect to Jewish text and tradition.
- Trees living and growing in the desert is essential to living in Israel.
- Israelis have developed technologies to make Ben-Gurion’s dream a reality in the dry desert climate, particularly in the Arava region of the Negev desert.

Essential Questions

- What do plants such as trees or vegetables need to grow?
- What challenges does a desert climate present to plants?
- What happens to plants if they don’t get their needs met?
- What foods and ecosystem services do trees provide?
- What is the Jewish people’s biblical relationship to trees?
- Why did modern Israel’s founders dream of a desert in bloom?
- What technologies have humans developed to grow plants in challenging desert environments?
- What is your personal relationship to the natural world in the land where you live?

This program will teach students, in a kid-friendly way, about the technological and scientific ideas that make it possible for the desert to bloom. By taking part in the experiments and activities below, elementary-aged students will learn about ideas such as drip irrigation and desalination as ways to improve life in Israel and make it possible for more people to live in the desert, and brackish water making fruit sweeter to eat. The page of text study is geared to higher grades, so that they too will understand the long-time connection of our people to the land, and will include the source texts from Israel’s first Prime Minister, David Ben-Gurion, on how and why to “make the desert bloom.”

As the director of learning for your own institution, feel free to use any and all of the educational ideas, programs, and resources included in this box.

How the Program Works

This program is designed to be flexible, enabling all teachers who are participating in JNF’s Tu BiShvat 2020 programs to use it easily. You may find that one component of the program works better for your class than others, or you can dive in and utilize all aspects of the program.



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What's in the Box

In trying to be environmentally friendly, we have re-imagined the box's contents. In it you will find:

- Facilitators guide: This gives you everything you need to utilize this program and create a tree-planting campaign for your school.
- The book, *Our Tree Named Steve*: Use this book as a way to begin the conversation with your students about the relationship we have with trees. Also included is a discussion guide with suggested questions for teachers to use before, during, and after reading the book.
- Text study source sheets: This includes Torah, rabbinic, and modern sources about the personal and communal relationships with trees. Included are some notes for the educator to use in connection to these texts.
- Printouts of our classroom experiments: We hope you find that these experiments lead to new ways for your students to appreciate the agricultural and scientific achievements Israel has accomplished in its short history. Included are notes to help educators plan for what the experiments will show, as well as other ideas.
- Posters: Hang up in your classrooms! These powerful images will connect what your students are learning to the incredible reality on the ground in Israel.
- "I Planted a Tree" stickers: To give to each of your students when they plant a tree. Using our new on-line Tu BiShvat in the Schools Tree Planting platform, keeping track of who has planted a tree will be easy.
- Seed packets: Two types: The parsley seeds are for each classroom to plant and harvest for Passover. The other seeds are for the additional activities that require seeds.
- Letter to parents: To share with families and help them understand the program their children will be participating in. The letter also includes information about the tree-planting campaign.
- Information on the National Kids Tree Sale Contest: To encourage students to sell trees for a chance to win prizes.

Suggested Order of Events

This program is intended to last for a few weeks so that the experiments have a chance to show progress. Please make sure that while class is not in session the experiments are taken care of (i.e. receive sunlight, water) so that when the students come back, they can appreciate the successes. While each classroom is unique, this program is intended to run in a specific arc. Feel free to look through the materials and adjust to the needs of your classroom or students.

First Day of Program

- Begin with a conversation about what the holiday of Tu BiShvat is about. Use the opening paragraphs of this Facilitators Guide to provide information to your students.
- Read *Our Tree Named Steve* and use the discussion questions.
- Have a discussion using the text study sheets.
- Set up and perform classroom experiments.

Follow-Up Day

- Look at the progress of the experiments.
- Discuss the results of the experiments using the discussion questions.



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Additional Resources

There is much more material available on www.jnf.org/tbs2020 website. Here is what you can find there:

- Links to download all materials
- Explanations and videos of each of the classroom experiments we suggest
- Suggestions of additional science experiments that are more in-depth and require more dedicated time and energy, as well as educational materials that work alongside them
- Information about how to create your school's tree-planting campaign website
- Information to share with families about this program
- FAQs about the program

Questions: *Our Tree Named Steve*

Use these suggested questions, or your own, to bring this picture book's message to life when/after reading:

- Why do you think that the older siblings started saying, "We love you, Steve"? Was it only to tease their little sister? What other reasons might there be?
- The father is the narrator here. It seems as if he's bought into the "We Love Steve" idea as well. In what ways does he describe the tree? What acts does the narrator "credit" Steve with doing or providing?
- (The page with Uncle Chester napping on a hammock and the following one may be the most important of the book for this program's needs.) Why do you think that "Steve sucked up all the smelly water," after the sewer overflowed? What do you think happens to trees when they are "watered" with salty, dirty, or polluted water? Do you think that it affects the tree from the inside out, or the outside in? (Teacher Note: When you do the experiment with the celery, the answer becomes clear.)
- (The pages where "Steve" was cracked by the storm, and the ones with the pink background: "Are we sad?..." are the most touching page in the book.) How does the narrator refer to Steve here? How did Steve protect the family "to the very end"?

Classroom Experiment Supplies

Overall Supplies list:

Note: Some activities can be performed with clear plastic cups, while others require containers that can be sealed such as empty soda bottles or mason jars. You may want to ask students to bring in these items in the weeks prior to ensure there is enough for everyone.

- Clear plastic cups/empty soda bottle/mason jar
- Toothpicks
- Avocado pits
- Bag of sand
- Bag of potting soil
- "Backyard" soil found in the garden of your facility, or any home garden or yard



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- Grass seed (If you are not using the packets of sprouts for the Kibbutz Lotan activity, you can use them instead.)
- Several different colors of food coloring
- Bag of celery
- Salt (Optional)

Classroom Experiments

Note to Teacher: The goal of these small science experiments is for your students to learn a bit about how the environment and scientific achievements helped Israel's desert bloom. These activities are all geared to begin on or before Tu BiShvat (February 10th), and continue one or two weeks afterwards so students can view the results (If you teach in a religious school that only meets on Sundays, you can begin on Sunday, February 9th and view the results two weeks later on Sunday, February 23rd since President's Day weekend falls in between). This will also give you an opportunity to follow up with all students and parents about the program and remind them about purchasing trees to be planted in Israel.

For any of these activities, please remember a few things:

1. Please look through each activity to decide which is the best for your students. You can incorporate one or all of them, but please read through all options before buying supplies.
2. Label everything with the names of students and which activity/activities you are doing in case the projects move to a different location.
3. Keep everything in sunlight. You may need to move them to a different room once you have completed the activity/activities with students.
4. For those in cold locations you may want to confirm that the heat will be on in the building so the projects do not freeze. You may want to consider moving them to another location if the building will be unheated.

Jewish National Fund: Making the Desert Bloom

To appreciate how important JNF's efforts were in creating an environment that could sustain communities and countless farms, the students first need to appreciate that growing plants in areas that would seem too harsh is the first step to understanding the idea of making the desert bloom. This simple activity gets the students to understand that plants can grow anywhere if given the opportunity.

- Label each cup with individual student's name.
- Fill each cup halfway with water.
- Stick a toothpick into each side of the avocado pit so that it will not fall into the water when you place it on top of the cup.
- Fill the rest of the cup until the avocado pit is submerged halfway in water.
- Review in two weeks and the students will be able to see that they can grow plants in places close to them, not just on far away farms.

Note to Facilitator: This is a simple activity to get an avocado pit to sprout roots. These roots will not make it possible to grow avocado trees; you need different avocado seeds for that. But this is a simple way for them to watch something grow outside of a garden.



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Yatir Forest: Growing Trees in the Desert

The trees that grow in the Yatir Forest grow in a far different environment than the trees in our neighborhoods. This activity will help show that plants are able to grow in what appear to be unwelcome environments — like deserts.

- Before planting, make sure to label each cup with what soil you have used, student's names, and whatever else you need for proper identification.
- Split the class into thirds so that each group can focus on one of the three types of dirt.
- Have students fill 1/3 of their cup with one of the three soils.
- Place 6-8 seeds into the soil of each cup.
- Add enough water to the cup so the soil is moist and the water has all been absorbed by the soil.
- Place the cups in a sunny location.
- Water every few days (You may need to make sure a building admin is aware so that they can water if you are only there once a week).
- Two weeks later, you will be able to see which of the soils was most helpful in growing the grass seeds. You can then show your students that the ability to grow plants in unwelcome regions is possible.

**If you want to continue this activity after the two weeks, you may want to consider adding fertilizer to the mixtures. Fertilizer is not useful in the first two weeks, but is later on in the growing process.*

Note to Facilitator: This activity is intended to show that plants can grow in different environments. The plants should all show some amount of sprouting, with the potting soil and backyard soil plants bearing more than the seeds planted in sand. This idea, like that of the avocado pit, is that any plant can grow if given water and sunlight.

Arava Institute: Watercolor Changes

To understand how different materials in our water can affect the food we grow, we must see how different outside factors can change our food. In this activity, we put celery into water that contains different food coloring. The goal is to see how the celery absorbs the different colors from the different waters.

- Before performing the activity, make sure to label each cup with what you are putting in, to identify each one.
- Fill each cup halfway with water.
- Place a celery stalk into each cup of water.
- Place a few drops of food coloring into each cup. Some cups should have one color, some should have no food coloring. You can also mix different colors into a single cup and/or add salt to some of the cups to see how that may change the celery.
- Make sure to have at least one cup with plain water to see what happens with no changes.
- In two weeks you will see some wide differences among the celery stalks.

Note to Facilitator: This activity is intended to show how different environments can affect plants differently. If you are doing this project in conjunction with *Our Tree Named Steve*, you can reference that Steve absorbs some bad things and has to be taken care of. The celery should turn the color of the food coloring. If you choose to add the salt to some, it should make the celery look withered with less food coloring absorbed.



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Kibbutz Lotan: Making the Desert Sprout

Growing sprouts is the easiest way for students to see growth before their very eyes and eat their own success! This activity takes significant preparation, as the sprouts must be washed every day to help them grow, but provides tremendous satisfaction upon completion. For videos on how to grow indoor sprouts, go to <http://www.jnf.org/tbs2020>.

Note to Facilitator: This is a great experiment because children can take it home to complete and can actually eat the results. For best results, please look at the materials on the website. They include write-ups and videos for you to understand how this experiment works.

Halutza: What Lies Beneath the Soils

Just like the people in Halutza (a community built in the desert sands on the border with Gaza) had to know that they were building the community in a place lacking natural resources, it is important to appreciate what is hidden beneath the ground we walk on every day. With this simple activity, your students can appreciate that the dirt they walk on is much more complex than they thought.

- Label each student's bottle.
- Put a few handfuls of dirt into the empty bottle/jar until the bottle is 1/3 full.
- Fill the bottle with water until it is halfway full.
- Have the students shake and turn the water (give each student a try or have multiple bottles).
- When the water settles, the dirt will have separated into different levels of soil based on their makeup.

Note to Facilitator: This activity is a simple one to show that our soil is more complex than what meets the eye. When you shake it, the different materials in the soil should coalesce because in water, materials come together when given the opportunity. So you should see somewhat clearly delineated levels on soil, rocks, etc. It's not important to be able to identify each level, just to get the students to appreciate that there is more than just dirt.

Wadi Attir: The Next Milestone

Just like the Bedouin community uses successes of the kibbutz network to improve their lives, you can improve the environmental focus of your school by creating a composting setup.

Since there are many different ways to start composting, we have listed a number of these options that can be found at www.jnf.org/tbs2020. You can start out small with a Rubbermaid bin in a classroom or create something for the entire building to use. All those ideas, other resources and how-to videos can be found at www.jnf.org/tbs2020.

Note to Facilitator: This is an opportunity to add composting to your classroom culture. There are some very easy setups that don't involve large building projects. The one we have highlighted can be as small as a large Rubbermaid container, and can live under a desk or in a corner of the classroom. Please take a look at the materials shared on the website to give you a better sense of how to go about creating this.



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Follow-Up Experiments

We know that most teachers think of drip irrigation or desalination when connecting Israel and trees/water. We offer programs for classrooms that focus on different ideas, so as not to conflict with other programs your school may be doing. If you are interested in in-depth programs you can bring to your classroom about these two technologies, you can find suggestions on our website.

Tree Sales and Prize Levels

JNF has planted over 260 million trees in Israel. While this is an impressive achievement, there is always need for more, due to natural forest regrowth, forest fires, and arson. We encourage every student to help continue to build up Israel by purchasing one or more trees. This year we are pleased to make ordering and planting your trees in Israel very simple. We have created an on-line tree ordering platform. In January, you will receive an email with your school's predesigned page. You will be able to customize your page if you would like, changing the language and/or adding in your school's logo, pictures or even a video. You can then share the link with your students, families, and faculty to make their purchases. Tree certificates ordered online will be fulfilled immediately and should be received in homes within 2 weeks. And, you will be able to keep track, in real time, how many trees your school has sold, by looking at your page's thermometer.

But what if we prefer to sell trees using the paper tree form, as we did in the past?

We understand that change is hard and some schools may prefer to sell trees using the paper tree forms, as you did in the past. We have enclosed one tree form, personalized with your school's VIS number. Feel free to make as many copies of the form as you need, and distribute to your students and their families. If you use this method, tree orders should be brought home, forms completed, and returned to the school with payment as soon as possible.

Send all orders in one large envelope, to:

JNF Tu BiShvat in the Schools Program
78 Randall Avenue
Rockville Centre, NY 11570

Please mail all tree orders to JNF by **Friday, February 28, 2020** so you may receive your tree certificates in a timely manner. Paper tree forms take 3-4 weeks to process.



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JNF
Recognizes
Students
And Schools
For Program
Participation

- Schools that plant 100 trees or more (\$1800+) will receive a special recognition listing at American Independence Park in Jerusalem. A certificate will also be sent to the school.
- This year, each school that participates in our annual tree sales competition will be entered for a chance to win two round-trip tickets to Israel. In addition, based on your school's volume of tree sales, you can earn cash prizes for your school. The more trees you plant, the bigger the prize money.
- Prize levels are based on collective tree purchases for the whole school. On-line tree sales and tree forms must be postmarked by **Friday, February 28, 2020**, to be included in our raffle and to win some great cash prizes!

Level 1*: Every school that plants 50 trees or more will receive \$180.

Level 2*: Every school that plants 100 trees or more will receive \$360.

Level 3*: Every school that plants 200 trees or more will receive \$720.

**Please note that prizes are not cumulative.*

New This Year! Nationwide Student Tree Sale Contest: Encourage your students to promote your school's tree sale campaign and they can win prizes. For more details, see the enclosed contest flier.



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