

Limudei Code-Esh: Sukkot

A Beginner KIBO Coding Curriculum
Integrated with Jewish Education



Using the Coding as Literacy (CAL) approach developed by

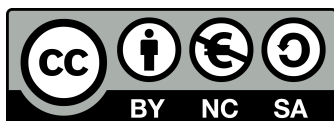
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This curriculum was developed by Rachel Viselman from DevTech Research Group under supervision of Professor Marina Umaschi Bers using both novel materials and old materials developed over many years of work with the KIBO programming environment, developed in part by Dr. Bers' DevTech Research Group. The Judaic content and text resources were provided by teachers Michal Bessler, Dan Savitt, and Fallon Rubin, and overseen by principals Reena Slovin and Rabbi David Saltzman. Fallon serves as Education Program Manager for students preK - 12 at the Reform synagogue Temple Israel of Boston. Dan teaches Rabbinic literature to 6th and 7th graders at the Solomon Schechter Day School of Greater Boston, affiliated with the Conservative movement. Michal teaches 3rd grade Judaic Studies at the Orthodox Maimonides School in Brookline, MA, where David and Reena are principals at the elementary school level.

Our goal in creating Limudei Code-esh is to provide an easily accessible coding curriculum that would integrate key themes of Jewish holidays and be appropriate for use in all Jewish day or supplementary school settings. It is our hope that the units of study will complement instruction and inspire a love of Jewish holiday celebration as well as computer science in elementary school age children.



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Introduction

CODING AS LITERACY (CAL) APPROACH

This curriculum introduces powerful ideas from computer science, specifically programming with KIBO, to children in Kindergarten through 3rd grade in a structured, developmentally appropriate way in the context of Jewish education. The Coding as Literacy (CAL) approach, developed by Prof. Marina Umaschi Bers and members of her DevTech Research Group at Tufts University, understands the learning of computer science as a literacy for the 21st century computer science ideas into direct conversation with powerful ideas from literacy. Both can support learners in developing new ways of thinking about themselves and the world.

Thinking involves the ability to make sense of, interpret, represent, model, predict, and invent our experiences in the world. Thus, as educators, we must give children one of the most powerful tools for thinking: language. The term language refers here to a system of communication, natural or artificial, composed of a formal limited system of signs, governed by syntactic and grammatical combinatory rules, that serves to communicate meaning by encoding and decoding information. Today, we have the opportunity to not only teach children how to think by using natural languages, such as English or Hebrew, but also by learning artificial languages—programming languages such as KIBO.

The achievement of literacy in a natural language involves a progression of skills beginning with the ability to understand spoken words, followed by the capacity to code and decode written words, and culminating in the deep understanding, interpretation, and production of text. The ultimate goal of literacy is not only for children to master the syntax and grammar, the orthography and morphology, but also the semantics and pragmatics, the meanings and uses of words, sentences and genres. A literate person knows that reading and writing are tools for meaning making and, ultimately, tools of power because they support new ways of thinking.

The CAL approach proposes that programming, as a literacy of the 21st century, engages new ways of thinking and new ways of communicating and expressing ideas, as well as new ways of problem solving and working with others. CAL understands the process of coding as a semiotic act, a meaning making activity that engages children in both developing computational thinking, as well as promoting personal expression, communication, and interpretation. This understanding shapes this curriculum and our strategies for teaching coding.

The curriculum is organized around powerful ideas from both computer science and Jewish studies, as well as fundamental ideas from literacy. The term **powerful idea** refers to a central concept or skills within a discipline that is simultaneously personally useful, inherently interconnected with other disciplines, and has roots in intuitive knowledge that a child has internalized over a long period of time. Powerful Ideas from the core domains of Computer Science, Sukkot, and Literacy are represented throughout this curriculum, and are described below.

Computer Science Powerful Ideas

This is designed as a beginner's curriculum for children who do not have previous experience with KIBO. The **powerful ideas from computer science** addressed in this curriculum include: algorithms, design process, representation, debugging, control structures, modularity, and hardware/software (see Table 1).

Table 1: Computer Science Powerful Ideas

Powerful Ideas	Definition	Relevant Lessons
Algorithms	A series of ordered steps taken in a sequence to solve a problem or achieve an end goal; a program	Lessons 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
Modularity	Breaking down tasks or procedures into simpler, manageable units that can be combined to create a more complex process	Lessons 12, 13, 15
Control Structures	These structures determine the order or sequence in which instructions are followed within an algorithm or program	Lessons 2, 19, 20
Representation	The idea that symbol systems can represent specific ideas or concepts	Lessons 2, 3, 4, 5, 7, 8, 9, 10, 15, 18, 19, 20
Hardware/Software	Hardware is physical machinery, like a computer. Software is intangible instructions that control the hardware. Hardware and software work together as a system to accomplish tasks of sending, processing, and receiving information	Lessons 1
Design Process	An iterative process used to develop programs and tangible artifacts that involve the following steps: Ask, Imagine, Plan, Create, Test & Improve, Create, Share	Lessons 3, 4, 6, 7, 11, 12, 13, 14, 16
Debugging	A strategy for iterating and repairing issues in a program of designed artifact	Lessons 3, 6, 8, 12, 13, 15

Sukkot Powerful Ideas

The **powerful ideas from Sukkot** include: impermanence/permanence, nature, sukkah, rejoice, the four species of plant, mitzvot, and gratitude/forgiveness. (see Table 2).

Table 2: Sukkot Powerful Ideas

Powerful Ideas	Definition	Relevant Lessons
Impermanence/Permanence	Some things do not last forever. The sukkah is used during Sukkot to represent impermanence during the Jewish people's 40 year journey out of Egypt. This holiday contrasts the ideas of permanence and impermanence through the differences between the sukkah we sleep and eat in during Sukkot and the permanent house we spend time in every other week.	Lessons 1, 2, 4, 16, 17
Nature	We use elements of nature to celebrate sukkot. Nature is seen through decorations, the building of the sukkah, and the foods that are eaten.	Lessons 3, 4, 6
Sukkah	The sukkah is the temporary structure the Jewish people dwelled in during the time of their exile. During Sukkot we honor this time by building, sitting, eating, and sleeping in the sukkah.	Lessons 4, 5, 12, 13, 15
Rejoice	During the holiday of Sukkot, the Jewish people are commanded to be happy/rejoice during the fall harvest.	Lessons 5, 14-16, 19
The Four Species of Plant	The lulav, willow, myrtle, and etrog are of great importance during this holiday as they are used as representations of the four body parts and the four types of Jewish people. They are symbolically shaken in multiple directions and a prayer is recited over them.	Lessons 7-10
Mitzvot	The two mitzvot of significance to Sukkot are sitting in the sukkah with family and friends and the blessing over the four species.	Lessons 8, 11-15
Gratitude/Forgiveness	On the seventh and last day of Sukkot, Hoshana Rabbah, the Jewish people ask for forgiveness. It is also important throughout this holiday for people to think about and be grateful for what they have.	Lessons 18-20

Literacy Powerful Ideas

The **powerful ideas from literacy** that will be placed in conversation with these powerful ideas from computer science and Jewish studies are: the writing process, recalling, summarizing and sequencing, using descriptive language, and using reading strategies such as summarizing and evaluating.

KIBO Concepts

The most important skills and concepts from KIBO used in each lesson are as listed below. Note that this is not a complete list because each activity is meant to be creative and typically open-ended. This table is meant to indicate which skills it would be difficult to complete a lesson without. Students are always encouraged to use any blocks or skills they learn in class or on their own on any project.

Table 3: KIBO Concepts

KIBO Concept	Relevant Lessons
Begin/End block	Lessons 1-20
Movement Blocks	Lessons 1-4, 6-20
Spin Block	Lessons 1, 2, 4, 5, 13, 15, 18, 19, 29
Shake Block	Lessons 2, 5, 8, 18
Sing Block	Lessons 5, 18
Beep Block	Lesson 18
Red Light Output/Block	Lessons 2, 5, 9, 10, 13
White Light Output/Block	Lessons 2, 5, 13, 18
Blue Light Output/Block	Lesson 18
*Sound Recorder/Playback Blocks	Lessons 8, 12, 15

*The sound recorder/playback blocks are an intermediate concept. They are used as potential extensions of an activity.

Integrated Curriculum Design

The CAL approach allows students to make connections between coding and literacy, as well as between coding and Jewish studies. This curriculum encourages students to express their thoughts, ideas, and learning through KIBO activities related to Sukkot. The curriculum is designed for a total of 20 hours, but can be adapted to particular learning settings. Each lesson contains a variety of activities, including:

- Design challenges to introduce the powerful ideas from computer science
- Discussions and activities addressing the powerful ideas from Sukkot
- Reading or vocabulary activities to introduce the powerful ideas from literacy
- Work individually or in pairs on designing and creating projects
- Technology circles to share and reflect on activities

This curriculum provides integration between Jewish education and programming in the context of Sukkot. Students will learn about why Sukkot is important and relevant to the Jewish community and use the new information they learn to write creative, fun programs on KIBO.

PACING

This is a 20-hour curriculum unit divided into approximately 1-hour lessons. Some students may benefit from further division of the activities into smaller steps or from more time to explore each new concept before moving onto the next, either in the context of free-exploration or with teacher-designed challenges. Each of the powerful ideas from computer science in this curriculum can easily be expanded into a unit of study which will extend the curriculum and allow students to explore a range of different activities.

Table 4: Pacing Guide

Lesson	Description
<i>Theme 1: History</i>	
Lesson 1: Leaving Egypt (60 minutes)	In this lesson, students will “gather belongings” for their 40 year journey through the desert. They will use the KIBO expression kit to decorate KIBO so it is “carrying” their “belongings.” They will then play with KIBO blocks to program KIBO to move around the room.
Lesson 2: Wandering in the Desert (60 minutes)	In this lesson, students will learn how to explain the wandering of the Jewish people in the desert through a KIBO version of the game Red Light, Green Light.
<i>Theme 2: The Sukkah</i>	
Lesson 3: Sukkah Scavenger Hunt (60 minutes)	Students will program KIBO to go on a scavenger hunt through “nature” to find supplies for the schach, sukkah covering. KIBO will be programmed to make stops along a game board to “pick up” necessary materials using the ‘wait for clap’ blocks.
Lesson 4: Building a Sukkah Part I (60 minutes)	Students will build a sukkah on KIBO using legos. Once built, students will program KIBO to move around in whatever direction and order they choose. This movement is intended to represent the impermanence of a sukkah.
Lesson 5: Building a Sukkah Part II (60 minutes)	Students will draw pictures to use as decorations in the sukkah. They will place the pictures on KIBO to represent decorating a sukkah. KIBO will be programmed to turn the white light on to signify day-time in the sukkah, to sing and dance (sing, shake and/or spin block) to rejoice, and then to turn the red light on to signify night-time.

Lesson 6: Fruit Find (60 minutes)	Students will keep the sukkah made in lesson 4 on top of KIBO. They will then make representations of fruits and place them on the floor around the play area. Students will choose which fruits to hang in their Sukkah by programming KIBO to approach the chosen fruits.
<i>Theme 3: The Four Species</i>	
Lesson 7: What are the Four Species (60 mins)	Students will play a game of four corners. Each corner of the room/play area will represent one of the four species. Students will take turns calling out the species to send KIBO toward. The rest of the team will program KIBO to move to the corner that was called. Which team will make the most efficient program and have their KIBO reach the location first?
Lesson 8: Shake it Up (60 minutes)	Students will combine the three types of branches to create a lulav. They will then attach the four species (lulav and etrog) to KIBO and recite the blessing over the lulav and etrog. KIBO will be programmed to move in each direction (forward, backward, left, and right) and to shake, representing the symbolic shaking of the lulav and etrog.
Lesson 9: The Four Species as Body Parts, Part I (60 minutes)	Students will program KIBO to express each of the four body parts that the species are believed to symbolize. In this lesson, we will focus on two of the four, willow and lulav.
Lesson 10: The Four Species as Body Parts, Part II (60 minutes)	Students will program KIBO to express each of the four body parts that the species are believed to symbolize. In this lesson, we will focus on the last two of the four, myrtle and etrog.
<i>Theme 4: Rejoice</i>	
Lesson 11: What is a Mitzvah? (60 minutes)	Students will identify a mitzvah they can do in their school, and program KIBO to help perform the mitzvah.
Lesson 12: Sukkot Dinner Invitations (60 mins)	Students will draw/write invitations asking someone to come to the sukkot dinner. Students will program KIBO to approach people and welcome them.
Lesson 13: Make Sukkot Dinner (60 minutes)	Students will use KIBO to prepare sukkot dinner. Plan a menu just like we plan KIBO movements. You can prepare challah, chicken soup, kugel, etc.
Lesson 14: Set Sukkah Table (60 minutes)	Students will decorate a kiddush cup and candles for the sukkot table. They will pretend the carpet area/play area is a table, put the kiddush cup and candles on KIBO, and program KIBO to move around.
Lesson 15: Celebration (60 minutes)	Students will program KIBO to dance and sing to their favorite Sukkot songs.
<i>Theme 5: Hoshana Rabbah and Gratitude</i>	
Lesson 16: Arrival in Israel (60 minutes)	Students will build a representation of the Western Wall out of blocks or construction paper. They will then program KIBO to move toward the Western Wall from its current location.

Lesson 17: Permanent vs. Temporary (60 minutes)	Students will work in pairs, drawing objects that are permanent and temporary. In their KIBO groups, children will pick drawings out of a hat and sort them. All the permanent drawings will be placed on the floor and all that is temporary will be placed on KIBO. Code KIBO to move around to represent impermanence with the pictures of temporary objects on top of it.
Lesson 18: Building a Permanent House (60 minutes)	Students will use legos to build a house on the floor, representing permanence. KIBO will act as the Jewish people arriving at their permanent home.
Lesson 19: Gratitude and Hoshana Rabbah Part I (60 minutes)	Students will write or draw something they are thankful for or want to apologize for on a piece of paper. They will come up with a combined 7 pieces of paper to represent the importance of the 7th day of Sukkot, Hoshana Rabbah. Pieces of paper will be connected within their group to form a ring of gratitude KIBO decoration.
Lesson 20: Gratitude and Hoshana Rabbah Part II (60 minutes)	Students will program KIBO to move seven times (represent Hoshana Rabbah being 7th day of sukkot). They will have KIBO parade with each group's ring of gratitude attached. The KIBO parade will end at a Sukkah, where KIBO celebrates.

MATERIALS

Since this curriculum is based on KIBO the main material necessary for the students are the KIBO robot and programming blocks. More information is provided in lessons that use these pages.

Other materials used in the curriculum are inexpensive crafts and recycled materials. The use of crafts and recycled materials, a practice already common in other domains of early childhood education, provides opportunities for children to use materials they are already comfortable with.

PEDAGOGICAL FRAMEWORK: POSITIVE TECHNOLOGICAL DEVELOPMENT and DIALOGIC INSTRUCTION

The theoretical foundation of this curriculum, called **Positive Technological Development (PTD)**, was developed by Prof. Marina Umaschi Bers and can be found in her books: *Blocks to Robotics: Learning with Technology in the Early Childhood Classroom* (Bers, 2008), *Designing Digital Experiences for Positive Youth Development: From Playpen to Playground* (Bers, 2012), and *Coding as a Playground: Programming and Computational Thinking in the Early Childhood Classroom* (Bers, 2018). The PTD framework guides the development, implementation and evaluation of educational programs that use new technologies to promote learning as an aspect of positive youth development. The PTD framework is a natural extension of the computer literacy and the technological fluency movements that have influenced the world of education but adds psychosocial and ethical components to the cognitive ones. From a theoretical perspective, PTD is an interdisciplinary approach that integrates ideas from the fields of computer-mediated communication, computer-supported collaborative learning, and the Constructionist theory of learning developed by Seymour Papert (1993) and views them in light of research in applied development science and positive youth development.



As a theoretical framework, PTD proposes six positive behaviors (six C's) that should be supported by educational programs that use new educational technologies, such as KIBO robotics. These are: **content creation, creativity, communication, collaboration, community building, and choices of conduct**. The six C's of PTD are highlighted in the activities throughout the curriculum with their respective icons:

CONTENT CREATION by designing a KIBO program and programming its behaviors. The engineering design process of building and the computational thinking involved in programming foster competence in computer literacy and technological fluency.



CREATIVITY by making and programming personally meaningful projects, problem solving in creative playful ways and integrating different media such as recyclable materials, arts and crafts, and a tangible programming language. Final KIBO projects that represent a theme found in the overall early childhood curriculum are a wonderful way to engage children in the creative process of learning.



COLLABORATION by engaging children in a learning environment that promotes working in teams, sharing resources and caring about each other while working with their KIBO programs. Collaboration is defined here as getting or giving help with a project, programming together, lending or borrowing materials, or working together on a common task. While working on their final projects, children create a collaboration web: a tool used to foster collaboration and support. Each child receives a printout with their photograph in the center of the page and the names and photographs of all the other children in the class arranged in a circle surrounding the central photo (see Appendix D for an example). Throughout the activity, with the teacher's prompting, each child draws a line from their own photo to the photos of the other children with whom they have collaborated. Children then write or draw "thank you cards" to the child with whom they have collaborated the most.



COMMUNICATION through mechanisms that promote a sense of connection between peers or with adults. For example, technology circles, when children stop their work, share their KIBO creation, and explain their learning process. Technology circles present a good opportunity for problem solving as a community. Some teachers invite all the children to sit together in the rug area for this. Each classroom will have its own



routines and expectations around group discussions and circle times, so teachers are encouraged to adapt what already works in their class for the technology circles in this curriculum.

COMMUNITY BUILDING through scaffolded opportunities to form a learning community that promotes contribution of ideas. Final projects done by children are shared with the community via an open house, demo day, or exhibition. These open houses provide authentic opportunities for children to share and celebrate the process and tangible products of their learning with family and friends. Each child is given the opportunity not only to run their program, but to play the role of teacher as they explain to their family how they built, programmed, and worked through problems.



CHOICES OF CONDUCT which provide children with the opportunity to experiment with “what if” questions and potential consequences, and to provoke examination of values and exploration of character traits while working with KIBO. As a program developed following the PTD approach, the focus on learning about coding is as important as helping children develop an inner compass to guide their actions in a just and responsible way.



In alignment with the Positive Technological Development (PTD) framework, this curriculum approaches literacy from the perspective of dialogic instruction. **Dialogic instruction** is a theory of learning (and teaching) premised on the belief that students engage with literacy instruction best when there are opportunities for them to engage in authentic, open-ended interpretation of texts. If a student does not have a voice, a position, or an evaluation of the text, then what good are literary skills? Only when she needs these tools for her own purpose, to help her achieve her own interpretation, and to convince others of it, will she have a reason and motivation (beyond getting a good grade) to acquire the tools being taught. This curriculum, in adherence with the theory of dialogic instruction, strives to place the student in the position of interpreter, with opportunities for authentic, open-ended interpretation of texts. This aligns with the curriculum’s approach to coding where students are given opportunities for open-ended coding tasks that encourage them to explore their own expressive ideas.

CLASSROOM MANAGEMENT

Teaching programming in an early childhood setting requires careful planning and ongoing adjustments when it comes to classroom management issues. These issues are not new to the early childhood teacher, but they may play out differently during KIBO activities because of the novelty of the materials themselves. Issues and solutions other than those described here may arise from classroom to classroom; teachers should find what works in their particular circumstances. In general, provide and teach a clear structure and set of expectations for using materials and for the routines of each part of the lessons (technology circles, clean up time, etc.). Make sure the students understand the goal(s) of each activity. Posters and visual aids can facilitate children’s attempts to answer their own questions and recall new information.

GROUP SIZES

The curriculum refers to whole-group versus pair or individual work. In fact, some classrooms may benefit from other groupings. Whether individual work is feasible depends on the availability of supplies, which may be limited for a number of reasons. However, an effort should be made to allow students to work in as small groups as possible, even individually. At the same time, the curriculum includes numerous opportunities to promote conversations which are enriched by multiple voices, viewpoints, and experiences. Some classes may be able to have these discussions as a whole

group. Other classes may want to break up into smaller groups to allow more children the opportunity to speak and to maintain focus. Some classes structure KIBO time to fit into a “center time” in the schedule, in which students rotate through small stations around the room with different activities at each location. This format gives students more access to teachers when they have questions and lets teachers tailor instruction and feedback as well as assess each students’ progress more easily than during whole-group work. It is important to find a structure and group size for each of the different activities (instruction, discussions, work on the challenges, and the final project) that meet the needs of the students and teachers in the class.

ALIGNMENT OF ACADEMIC FRAMEWORK

This curriculum is designed as a beginners curriculum for KIBO and coding and is designed to be used from Kindergarten through third grade. The curriculum is aligned with nationally recognized computer science frameworks, including the ISTE Standards for Students (2017), K–12 Computer Science Framework (2016) and the Massachusetts Digital Literacy and Computer Science (DLCS) Curriculum Framework (2016) as well as Common Core English Language Arts (ELA)/ Literacy Framework (Council of Chief State School Officers, 2011). In addition, the Jewish materials and approach was designed by a group of experienced Jewish educators representing orthodox, conservative and reform denominational movements in Judaism. The goal is that the curriculum could be used by any Jewish learning setting across the world.

Theme 1: History

Lesson 1: Leaving Egypt

OVERVIEW

In this lesson, students will build and program a KIBO to move on an exiled “journey” just like the Jewish people in the Story of Sukkot. They will also decorate their robot to symbolize the belongings that they would have carried on this journey.

ACTIVITIES

- What Does It Mean To Be Exiled (10 minutes)
- Gather Belongings (10 minutes)
- KIBO Exile (30 min)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain the Jewish exile from Egypt

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Hardware/Software

POWERFUL IDEAS FROM SUKKOT

- ☐ Impermanence/Permanence

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Left, Right, Spin, Shake)

Lesson 1: Activities

WHAT DOES IT MEAN TO BE EXILED? (10 MIN)

Watch “Sukkot: Take Your Home Outside” on Youtube, <https://www.youtube.com/watch?v=x22duYfizkQ> (Duration=2:28).

Discuss the Jewish exile from Egypt. What does it mean to be “exiled?” The Jewish people had to leave their houses like those in the video. Where would you go if you had to leave your house and Massachusetts? What would you bring with you?

GATHER BELONGINGS (10 MIN)

Students will “gather belongings” for their 40-year journey through the desert. They can use the KIBO expression kit to decorate KIBO so it is “carrying” their “belongings.”

KIBO ACTIVITY: THE EXILE (30 MIN)

Students will play with KIBO blocks to program KIBO to move around the room. This is intended to be a time for students to get acquainted with KIBO and its programming blocks.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

KIBO carried your belongings, but if you lived during this time in Jewish history, you would be the one carrying them. What would it be like to be constantly moving throughout the day?

How did you decide where KIBO would move and which direction to go? What made KIBO move?

Lesson 2: Wandering in the Desert

OVERVIEW

In this lesson, students will express what it was like to live during the time of wandering. They will program KIBO to symbolize the morning and nighttime, and the movement of the Jewish people throughout the day.

ACTIVITIES

- What is Impermanence? (10 minutes)
- Red Light/Green Light (10 min)
- KIBO Red Light/White Light (30 minutes)
- Wrap Up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain the wandering of the Jewish people in the desert
- Understand impermanence
- Identify Hag Hasukkot

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Control Structures
- ☐ Representations
- ☐ Algorithms

POWERFUL IDEAS FROM SUKKOT

- ☐ Impermanence/Permanence

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ Red Light Block/Output
- ☐ White Light Block/Output

Lesson 2: Activities

WHAT IS IMPERMANENCE? (10 MIN)

Discuss “impermanence” with the class. When the Jewish people were wandering through the desert, they did not have a permanent place to be. They would wake up in the morning and continue their journey, only stopping at night to set up a temporary place to sleep. That is why we celebrate “hag hasukkot,” the festival of huts, during this holiday.

The Festival of Huts	Hag Hasukkot	חג הסוכות
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RED LIGHT/GREEN LIGHT (10 MIN)

Students will play a game of Red Light, Green Light to become familiar with the concepts of sequencing. When the teacher says green light, the children can move. When the teacher says red light, they have to stop. Students must move from one end of the room to the other following this pattern.

KIBO ACTIVITY: KIBO RED LIGHT/WHITE LIGHT (30 MIN)

Students will participate in a KIBO version of the game Red Light, Green Light. KIBO will “wake up” and a white light bulb will turn on. Every time the white light bulb is programmed, it represents the morning. Students will program KIBO to move (they choose the direction) after every white light. When the red light bulb lights up, representing nighttime, it is time to stop. When programming KIBO, KIBO will not move in any direction after the red light goes off. However, KIBO can be programmed to shake or spin in place representing setting up a temporary house (sukkah) in the desert to sleep in.



WRAP-UP ACTIVITY (10 MIN)

What would it be like to wake up every morning and move until it was time to go to sleep? You moved KIBO around the classroom during KIBO’s “daytime” and had it end movement during “nighttime.” How did you know it was daytime or nighttime? Why would you stop moving at nighttime? How would you have known it was daytime or nighttime in the desert?

Theme 2:

The Sukkah

Lesson 3: Sukkah Scavenger Hunt

OVERVIEW

In this lesson, students will go on a scavenger hunt to find the necessary parts of nature to build a sukkah and its schach.

ACTIVITIES

- What is a Sukkah? (10 minutes)
- Create a Game-Board (10 minutes)
- Scavenger Hunt (30 minutes)
- Wrap Up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain why we sit in a sukkah
- Explain that the sukkah needs to be built under the sky with nothing in between to obstruct the view
- Identify a kosher sukkah
- Identify a schach
- Identify materials used to build a sukkah

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Representation
- ☐ Design Process
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ Nature

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 3: Activities

WHAT IS A SUKKAH? (10 MIN)

Teachers will explain what a sukkah is, why we sit in it and what materials are used to build it.

We sit in a sukkah to remember the times the Jewish people built sukkahs (huts) as they were traveling through the desert. It is important that the sukkah is built under the sky with nothing to block the view of the stars, but providing more shade than sun during the day. Instead of a roof, the sukkah has schach (sukkah covering) made of living things that grow from the ground but are not connected to it. These natural materials include bamboo poles, evergreen branches, and narrow strips of wood.

The Festival of Huts	Hag Hasukkot	חג הסוכות
Hut	Sukkah	סֻכָּה
Covering	S'khakh/Schach	סֻכָּךְ

CREATE A GAME-BOARD (10 MIN)

Introduce the “game-board” comprised of a piece of cardboard with supplies representing nature. Students will place a piece of cardboard in the play area and scatter the materials representing nature throughout the “game-board.”

KIBO ACTIVITY: SCAVENGER HUNT (30 MIN)

Students will program KIBO to go on a scavenger hunt through “nature” to find supplies for the schach, sukkah covering. KIBO will be programmed to make stops along the game board to “pick up” necessary materials.

*These stops can be programmed using the ‘wait for clap’ block, as well as certain ‘repeat’ loops for advanced users.



WRAP-UP ACTIVITY (10 MIN)

Discuss which supplies you found on the scavenger hunt activity. Why do you think those were the supplies we had available. How did you decide which natural object to send KIBO to first? How hard do you think it was for the Jewish people to find materials in their environment? Was it easier than if they used the materials we have for our houses?

Lesson 4: Building a Sukkah Part 1

OVERVIEW

In this lesson, students will use KIBO as a platform to build and move their sukkahs. They will use the proper materials and follow the specifications for a sukkah and its schach.

ACTIVITIES

- Describe a Sukkah (10 minutes)
- Build a Sukkah (15 minutes)
- Move the Sukkah (25 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify Hag Hasukkot, Sukkah, and Schach
- Explain how to build a sukkah

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Representation
- ☐ Design Process

POWERFUL IDEAS FROM SUKKOT

- ☐ Sukkah
- ☐ Nature
- ☐ Impermanence/Permanence

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)

Lesson 4: Activities

DESCRIBE A SUKKAH? (10 MIN)

Watch “The Lego Sukkot Movie” on Youtube, <https://www.youtube.com/watch?v=SRHkgWGyn4Y> (Duration=4:14).

Teachers will remind the students what is important to consider in building a sukkah. The Jewish people used these huts as temporary structures to sleep under, so they needed to provide shade but not block the view of the sky. That is why we use schach to cover the top opening. Although houses are built with 4 walls and a roof, a sukkah can be built with 2 1/2, 3, or 4 walls.

BUILD A SUKKAH (15 MIN)

Students will build a sukkah on KIBO using legos to represent wood for the walls and cut up tissue paper to represent elements from nature for the roof.

KIBO ACTIVITY: MOVE THE SUKKAH (25 MIN)

Once built, students will program KIBO to move around in whatever direction and order they choose. This movement is intended to represent the impermanence of a sukkah.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Students will share the sukkahs they built with their class. How did they decide how to build it? Would they add to it if they had more time?

Lesson 5: Building a Sukkah Part 2

OVERVIEW

In this lesson, students will decorate their previously built sukkahs to represent “hiddur mitzvah,” and they will program KIBO to represent the mitzvah of rejoicing.

ACTIVITIES

- What is Hiddur Mitzvah (5-10 minutes)
- Decorate the Sukkah (20 minutes)
- Rejoice (20 minutes)
- Wrap - Up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain why we decorate the sukkah
- Identify Hiddur Mitzvah

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Representation

POWERFUL IDEAS FROM SUKKOT

- ☐ Sukkah
- ☐ Rejoice

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ White/Red Light Blocks
- ☐ White/Red Light Outputs
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ Sing Block

Lesson 5: Activities

WHAT IS HIDDUR MITZVAH? (10 MIN)

Discuss the importance of decoration with students. What decorations do you have in your room/house? Why do you decorate it? Just like you decorate your home, the Jewish people decorated their sukkahs. How will you decorate yours?

Listen to “Lets Build a Succah” on Youtube, <https://www.youtube.com/watch?v=Zrholeeqxdk> (Duration=1:26).

Teach the concept of “hiddur mitzvah,” the beautification of the mitzvah.

The Festival of Huts	Hag Hasukkot	חג הסוכות
Hut	Sukkah	סִכָּה
Covering	S'khakh/Schach	סִכָּךְ
Beautification of the Mitzvah	Hiddur Mitzvah	הדור מצוה

DECORATE THE SUKKAH (20 MIN)

Students will draw pictures to use as decorations in the sukkah. They will place the pictures on KIBO to represent decorating a sukkah.

KIBO ACTIVITY: REJOICE (20 MIN)

KIBO will be programmed to turn the white light on to signify day-time in the sukkah, to sing and dance (shake and/or spin block) to rejoice, and then to turn the red light on to signify night-time.

Example Blocks:



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WRAP-UP ACTIVITY (10 MIN)

Students will share their finished sukkah with the class and show the program they created. Why did you decorate the way you did? How did you decide what KIBO was going to do to celebrate?

Lesson 6: Fruit Find

OVERVIEW

In this lesson, students will program KIBO on an adventure toward the fruit they choose to use as decorations for their sukkah (still placed on top of the KIBO).

ACTIVITIES

- Significance of Fruits (10 minutes)
- Create Fruits (10 minutes)
- Collect Fruits (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain why we decorate the sukkah
- Explain what we use to decorate the sukkah

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Design Process
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ Nature

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)

Lesson 6: Activities

SIGNIFICANCE OF FRUITS (10 MIN)

Discuss what the Jewish people used to decorate their sukkahs. When traveling through the desert, did the Jewish people have materials to create decorations like yours? They used fruits and plants to be thankful for nature and make their sukkah feel like a home.

“In the fifteenth day of the seventh, when you have gathered in the fruits of the land, you shall keep a feast unto the Lord seven days ...And you shall take for yourselves on the first day the boughs of goodly trees, branches of palm trees, and boughs of thick trees, and willows of the brook; and you shall rejoice before the Lord your God seven days... You shall dwell in booths ... that your generations may know that I made the children of Israel to dwell in booths, when I brought them out of the Land of Egypt” (Leviticus: 23,39-45)

CREATE FRUITS (10 MIN)

Children will keep the previously made sukkah from lessons 4 and 5. They will then make representations of fruits out of construction paper or other classroom materials. These “fruits” will be placed on the floor around the play area.

KIBO ACTIVITY: COLLECT FRUITS (30 MIN)

Students will choose which fruits to hang in their Sukkah by programming KIBO to move toward the chosen fruits. When KIBO reaches the fruit, students will place the fruit on KIBO/the sukkah and create a new program to go collect the next fruit.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Students will explain what fruits they chose and why to decorate their KIBO. How did their program change depending on the fruit they wanted KIBO to get?

Theme 3:

The Four Species

Lesson 7: What are the Four Species?

OVERVIEW

In this lesson, students will program KIBO to move to the previously identified corners of the room that represent the etrog, lulav, hadasim, and aravot.

ACTIVITIES

- Introduce the Four Species (10 minutes)
- Decorate Four Corners (10 minutes)
- Species Four Corners (30 minutes)
- Wrap -up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the four species in English and Hebrew

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Representation
- ☐ Design Process

POWERFUL IDEAS FROM SUKKOT

- ☐ The Four Species of Plants

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 7: Activities

INTRODUCE THE FOUR SPECIES (10 MIN)

Introduce students to the four species of plants important to Sukkot. Discuss the importance of these specific species and not being able to replace them with any other because these are native to Israel.

The Four Species	Arba'ah Minim	אַרְבַּעַה מִיָּנִים
Citron	Etrog	אֶתְרוֹג אֶתְרוֹג
Palm Branch	Lulav	לוּלָב
Myrtle Branch	Hadasim	הַדַּסִּים
Willow Branch	Aravot	עֲרָבוֹת

DECORATE FOUR CORNERS (10 MIN)

Students will decorate four corners of the classroom/play area to each represent one of the four species.

KIBO ACTIVITY: SPECIES FOUR CORNERS (30 MIN)

Students will take turns calling out the species to send KIBO toward. The rest of the team will program KIBO to move to the corner that was called.

For example, if the upper right corner is lulav and Sally says “lulav,” the team will program KIBO to move to the right and up to reach the corner of the room/play area.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Students had to come up with different programs to send KIBO from one area to the next during this activity. Have a discussion about it...

Was it difficult to come up with the fastest route to get to the corner that was called? Why do you think some teams were able to send their KIBO faster than others; did they use more or less blocks in their program? Did some KIBOs not move far enough? Maybe those people did not use enough blocks.

Lesson 8: Shake it Up

OVERVIEW

In this lesson, students will decorate KIBO with the four species and program it to shake in the four symbolic directions.

ACTIVITIES

- Discussion on Combining the Species (10 minutes)
- Create a Lulav (10 minutes)
- Shaking the Lulav and Etrog (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the four species in English and Hebrew
- Identify a mitzvah
- Recite the blessings over the four species
- Explain why we unite the four species and shake them in four directions
- Explain the significance of the four species

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Representation
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ The Symbolism of the Four Species
- ☐ Mitzvot

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ *For more advanced: Voice Input/Output Block

Lesson 8: Activities

DISCUSSION ON COMBINING THE SPECIES (10 MIN)

Teachers will explain the importance of the four species and how they are used during Sukkot. Does anyone know how they are combined and what we use them for? The three types of branches create what is called a “lulav” and the Jewish people shake the “lulav” with the “etrog” during Sukkot. We shake them to show that all the Jewish people are united; There are four species and four types of Jewish people, who together make up a nation. Does anyone know another reason why we shake the four species?

Students are then taught the blessing over the four species...

Blessed are you, Lord, our God, sovereign of the universe who has sanctified us with His commandments and commanded us to take up the lulav.	Barukh ata Adonai Eloheinu melekh ha'olam, asher kid'shanu b'mitzvotav v'tzivanu al n'tilat lulav.	ברוך אתה, יי אלהינו, מלך העולם, אשר קדשנו במצותיו וצונו על גטילת לולב.
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CREATE A LULAV (10 MIN)

Students will combine the three types of branches to create a lulav. They will then attach the four species (lulav and etrog) to KIBO.

KIBO ACTIVITY: SHAKING THE LULAV AND ETROG (30 MIN)

KIBO will be programmed to move in each direction (forward, backward, left, and right). After KIBO moves in each direction, the students will have it programmed to shake, representing the symbolic shaking of the lulav and etrog.

Example Blocks:



OPTIONAL EXTENSION (10 MIN)

If extending this lesson, after the four movements and shaking, KIBO can be coded to play a voice recording of the blessing over the lulav and etrog:

You can start the conversation by asking if anyone can guess what the Sound Recorder module looks like. Some children may recognize the microphone from apps or computer programs.

Attach the Sound Recorder to the KIBO and demonstrate how to press the triangle button while you make a sound. You can show how the green light turns on when recording. Practice recording one or two more times with a child

Lesson 8: Activities

making a funny sound. Scan your demo program of BEGIN - PLAYBACK (TRIANGLE) - END and play your new Sound Recording!



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* It is important to note that it is not possible to parallel program with KIBO. The recording can be programmed to play before or after movements, but not at the same time as them.

WRAP-UP ACTIVITY (10 MIN)

Students will present their programs for the shaking of the lulav and etrog on KIBO. While KIBO is moving, the class will recite the prayer together.

Lesson 9: The Four Species as Body Parts Part 1

OVERVIEW

In this lesson, students will program KIBO to express two of the four body parts that are symbolized by the four species, willow (lips) and lulav (spine).

ACTIVITIES

- Four Species as Body Parts (10 minutes)
- KIBO's Body (10 minutes)
- Body Part Representation (30 minutes)
- Wrap-up activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the four species in English and Hebrew
- Explain the significance of the four species
- Explain the symbolism of the four species as body parts

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Representations

POWERFUL IDEAS FROM SUKKOT

- ☐ The Symbolism of the Four Species

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward)
- ☐ Red Light Block/Output

Lesson 9: Activities

FOUR SPECIES AS BODY PARTS (10 MIN)

Watch “Shakin’ the Lulav” on Youtube, <https://www.youtube.com/watch?v=gODQopgR64Y> (Duration=2:43).

The four species each have to do with a body part. Explain the symbolism of the willow and the lulav. The willow symbolizes lips and speaking on behalf of people who cannot. What does that mean? How do you help others who cannot speak? The lulav is for the spine and standing tall. When is it important for you to stand tall?

KIBO’S BODY (10 MIN)

Our bodies are important to us just like KIBO’s body is important to it.

Introduce students to the KIBO body parts song.

KIBO ACTIVITY: BODY PART REPRESENTATION (30 MIN)

Students will use a roll of paper to create outlines of their bodies. They will then draw the lips and spine to represent the willow and lulav.

In this lesson, students will program two of the four species using KIBO. For willow (lips), program KIBO to move toward the previously drawn lips (for more advanced, see lesson 8 to learn how to program a voice recording and program it to play when KIBO reaches the drawn lips). For lulav (spine), program KIBO to “walk” forward along the previously drawn spine and then stop to act out standing still. What other ways can we program KIBO to show how we can speak up and stand tall?

Willow Example Blocks:



Lulav Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Why do you think it is important to speak for others and stand tall? How can KIBO do that; Is it possible to speak without lips and stand tall without a spine?

Lesson 10: The Four Species as Body Parts Part 2

OVERVIEW

In this lesson, students will program KIBO to express two of the four body parts that are symbolized by the four species, etrog (heart) and myrtle (eyes).

ACTIVITIES

- The Four Species as Body Parts (10 minutes)
- Four Species Simon Says (15 minutes)
- Navigating Four Body Parts (25 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the four species in English and Hebrew
- Explain the significance of the four species
- Explain the symbolism of the four species as body parts

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Representations

POWERFUL IDEAS FROM SUKKOT

- ☐ The Symbolism of the Four Species

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward)
- ☐ Red Light Block/Output

Lesson 10: Activities

THE FOUR SPECIES AS BODY PARTS (10 MIN)

Listen and dance to “Shake Your Lulav” on Youtube, <https://www.youtube.com/watch?v=5I4XkvZHvHI> (Duration=3:23).

The four species each have to do with a body part. Explain the symbolism of the etrog and the myrtle. The etrog symbolizes the heart which is used to feel for others. What does that mean? How do you feel for others? The myrtle branch is for eyes that see overlooked people. What do you use your eyes for?

FOUR SPECIES SIMON SAYS (15 MIN)

Students will add a heart and eyes to the previously made outline of their body. What do we use these body parts for?

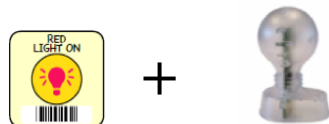
Students will play a game of Simon Says. Instead of saying the body part though, the teacher (Simon) will say one of the four species. Students have to touch the corresponding body part.

KIBO ACTIVITY: NAVIGATING THE BODY PARTS (30 MIN)

Students will program KIBO to express each of the four body parts that the species are believed to symbolize.

In this lesson, we will focus on the last two of the four. Students will program KIBO to move toward the eyes and the heart on the outline of their body. They will explain which species each one is and what it is used for.

For etrog (heart), children will attach the red light for love, and use the corresponding block for the red light output. They will program for the light to turn on when KIBO reaches the heart.



For myrtle (eyes), children will simply watch their programmed KIBO movements.

Example Blocks:



If time allows for it, children will program KIBO to see a friend in need and use its heart to decide how to be there for them.

WRAP-UP ACTIVITY (10 MIN)

Why do you think these four body parts are considered the most important? What would it be like not to have a heart or eyes?

Theme 4:

Rejoice

Lesson 11: What is a Mitzvah?

OVERVIEW

In this lesson, students will perform mitzvot around their classroom community. They will program KIBO to act as their helper, assisting them in doing good deeds.

ACTIVITIES

- What is a Mitzvah? (10 minutes)
- Plan a Mitzvah (10 minutes)
- KIBO and the Mitzvah (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a mitzvah

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Design Process

POWERFUL IDEAS FROM SUKKOT

- ☐ Mitzvot

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 11: Activities

WHAT IS A MITZVAH? (10 MIN)

Introduce lesson content and activity.

Watch “Shalom Sesame: Mitzvah Impossible” on Youtube, <https://www.youtube.com/watch?v=wiy7DdVThnE&t=20s> (Duration=4:04).

Introduce students to mitzvot. What is a mitzvah? What is a mitzvah you can do in the classroom or for a friend?

PLAN A MITZVAH (10 MIN)

Anyone can perform a mitzvah. What mitzvot will you do in the classroom or for one of your friends?

KIBO ACTIVITY: KIBO AND THE MITZVAH (30 MIN)

Students will decorate KIBO and program it to help them perform a mitzvah. Through the incorporation of this concept, children will have some freedom to explore the programming blocks introduced in lesson 1.

For example, if you are going to make a friend feel better when he or she is sad, what can KIBO do to help cheer the friend up? Maybe make KIBO approach friend and sing or dance.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Students will share what mitzvah they chose and show how KIBO helped them perform it. Why is it important to do mitzvot?

Lesson 12: Sukkot Dinner Invitations

OVERVIEW

In this lesson, students will use KIBO to invite guests to dinner through designing invitations and programming KIBO to approach people in the classroom.

ACTIVITIES

- Mitzvah of Sukkot (10 minutes)
- Invitation Making (10 minutes)
- KIBO Invitations (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah and a mitzvah
- Explain the mitzvah of Sukkot

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Modularity
- ☐ Design Process
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ Sukkah
- ☐ Mitzvot

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 12: Activities

MITZVAH OF SUKKOT (10 MIN)

Introduce students to the mitzvah of sukkot, to rejoice with friends and family in the sukkah.

Deuteronomy 16:14-15 (Parashat R'ei)	דברים טז:יד-טו (פרשת ראה)
You shall rejoice in your festival, with your son and daughter, your male and female slave, the Levite, the stranger, the fatherless, and the widow in your communities. You shall hold a festival for the LORD your God seven days, in the place that the LORD will choose; for the LORD your God will bless all your crops and all your undertakings, and you shall have nothing but joy.	וְשִׂמְחֶתָּ בְּחַגְךָ אֶתֶּה וּבִנְךָ וּבִתְּךָ וְעַבְדְּךָ וַעֲמָתְךָ וְהַלְוִי וְהַגֵּר וְהִיתוּם וְהָאֲלֻמִּינָה אֲשֶׁר בְּשַׁעְרֶיךָ: שִׁבְעַת יָמִים תַּחֲלֹל לָהּ אֶלֶיֶךָ בַּמָּקוֹם אֲשֶׁר יִבְחַר ה' כִּי יִבְרַכְךָ ה' אֱלֹהֶיךָ בְּכָל תְּבוּאָתְךָ וּבְכָל מַעֲשֵׂה יָדֶיךָ וְהָיִיתָ אֶדְ שִׂמְחָה:

INVITATION MAKING (10 MIN)

Students will draw/write invitations asking someone to come to the Sukkot dinner.

KIBO ACTIVITY: KIBO INVITATIONS (30 MIN)

Students will program KIBO to approach people and welcome them. They can program KIBO to move toward people to deliver an invitation or decorate with welcoming aesthetics.



Example Blocks:

OPTIONAL EXTENSION (10 MIN)

For more advanced play, students can use the voice recorder to program KIBO to speak an invitation. See lesson 8 for a summary of how to introduce and use the sound recorder module and blocks.

Once invitations have been “sent,” students will work together to make similar programs that allow for their KIBOs to move together. This symbolizes the togetherness of the Jewish people and the importance of rejoicing as a nation.

WRAP-UP ACTIVITY (10 MIN)

Who did you invite to your Sukkot dinner? How did it feel when you were invited to someone else’s dinner?

Lesson 13: Make Sukkot Dinner

OVERVIEW

In this lesson, students will program KIBO to cook their favorite Sukkot dinner. Together with classmates, they can plan a menu just like we plan KIBO movements.

ACTIVITIES

- Importance of Rejoicing (10 minutes)
- Menu Planning (10 minutes)
- Make Sukkot Dinner (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah and mitzvah
- Explain the mitzvah of Sukkot

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Modularity
- ☐ Design Process
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ Sukkah
- ☐ Mitzvot

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ Red Light Block/Output
- ☐ White Light Block/Output

Lesson 13: Activities

IMPORTANCE OF REJOICING (10 MIN)

Listen to “The Sukkot Song” on YouTube, https://www.youtube.com/watch?v=NGIG_cXfzDY (Duration=4:00).

Discuss the mitzvah of Sukkot. Why is it important to rejoice with friends and family in the sukkah? Why are we celebrating?

MENU PLANNING (10 MIN)

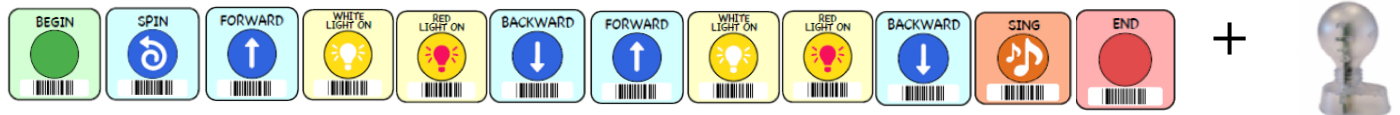
What are you going to make for Sukkot dinner? Plan a menu just like we plan KIBO movements. You can prepare challah, chicken soup, kugel, etc.

KIBO ACTIVITY: MAKE SUKKOT DINNER (30 MIN)

Program KIBO to be your assistant chef and help you make Sukkot dinner.

An example program is as follows...Program KIBO to stir the ingredients using the spin block, move KIBO forward to represent putting the food in the oven. When the white light is on, the oven is on and when the red light turns on, the food is ready. Program KIBO to move backward to take the food out of the oven. Is the food ready? Maybe you need to put it back in the oven again. Program and change the coding blocks as necessary.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

How did you decide what to make for Sukkot dinner? Share with the class the program you made for KIBO to make this meal.

Lesson 14: Set Sukkah Table

OVERVIEW

In this lesson, students will decorate a kiddush cup and candles for their Sukkot dinner and program KIBO to bring these objects to set the dinner table in the sukkah.

ACTIVITIES

- Significance of Kiddush Cup and Candles (10 minutes)
- Decorate a Kiddush Cup and Candles (10 minutes)
- Sturdy Building Challenge (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah and a mitzvah
- Recite blessings over the wine and the candles
- Explain the significance of the kiddush cup and candles at holiday dinner
- Explain the mitzvot of Sukkot

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Design process

POWERFUL IDEAS FROM SUKKOT

- ☐ Mitzvot
- ☐ Sukkot Dinner

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 14: Activities

SIGNIFICANCE OF KIDDUSH CUP AND CANDLES (10 MIN)

Discuss the significance of the kiddush cup and candles at Sukkot dinner. Where else do we use these objects? The first and second night of Sukkot we light the candles to honor Sukkot. The kiddush cup is a cup filled with wine or grape juice that is used to make the holiday holy.

What is the blessing we recite over the kiddush cup? Teach the blessings over the wine and candles.

Prayer over candles:

ברוך אתה יי אלהינו מלך העולם, אשר קדשנו במצותיו,
וצונו להדליק נר של (שבת ושל) יום טוב.

Blessed are You, L-rd our G-d, King of the Universe, who has sanctified us with His commandments and has commanded us to kindle the light of the Festival Day.	Ba-ruch A-tah Ado-nai E-lo-he-nu Me-lech ha-olam a-sheer ki-de-sha-nu be-mitz-vo-tav ve-tzi-va-nu le-had-lik ner shel yom tov.
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Kiddush:

ברוך אתה אדני אלהינו מלך העולם בורא פרי הגפן

Blessed are You, Adonai our God, Sovereign of all, Creator of the fruit of the vine.	Baruch atah, Adonai Eloheinu, Melech haolam, borei p'ri hagafen.
--	--

DECORATE KIDDUSH CUP AND CANDLES (10 MIN)

Decorate a kiddush cup and candles for the sukkot table. Pretend the carpet area/play area is a table.

KIBO ACTIVITY: STURDY BUILDING CHALLENGE (30 MIN)

Place the kiddush cup on KIBO and program KIBO to move around. When KIBO stops, place the kiddush cup on the "table." Make a new program to perform these actions for the candles.

Example Blocks:



Teachers will determine with their students what will constitute the start and end of a race in their play area. Then students will participate in a sturdy building challenge. They will take a representation of a kiddush cup from the classroom and something that represents candle sticks. The only rules are that the cup has to be placed upright and there must be two "candles." Both representations will be placed on KIBO. KIBO then has to move from the starting spot to the finish line.

WRAP-UP ACTIVITY (10 MIN)

Students will work together to recite the kiddush (prayer over the kiddush cup) and the blessing over the candles.

Lesson 15: Celebration

OVERVIEW

In this lesson, students will program KIBO to rejoice, sing and dance, to their favorite Sukkot songs.

ACTIVITIES

- When Do We Celebrate? (10 minutes)
- Sing and Dance (10 minutes)
- KIBO Dance Party (30 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah and a mitzvah
- Explain the importance of rejoicing

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Modularity
- ☐ Representation
- ☐ Debugging

POWERFUL IDEAS FROM SUKKOT

- ☐ Mitzvot
- ☐ Sukkah
- ☐ Rejoice

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ *If choose to advance lesson, include Sound Recorder/Playback Blocks

Lesson 15: Activities

WHEN DO WE CELEBRATE? (10 MIN)

Sukkot is a holiday where we celebrate. What do you like to do to celebrate? Where else have you celebrated?

SING AND DANCE (10 MIN)

Watch Youtube video “Shake Lulav,” <https://www.youtube.com/watch?v=QlG-mvzE-Ow> (Duration=3:23).

What is your favorite Sukkot song? Sing and dance.

KIBO ACTIVITY: KIBO DANCE PARTY (30 MIN)

Students will program KIBO to dance and sing to their favorite Sukkot songs. For example, if KIBO is dancing to the “wheels on the bus,” program KIBO to dance to the lyrics “the wheels on the bus go round and round” by having KIBO move forward, backward, and turn around.

Example Blocks:



*For more advanced, they can use the recording function to record themselves singing the song or any sound effect that has to do with the song. For example, if the “horn on the bus goes ‘beep, beep, beep,’” they can record themselves saying “beep, beep, beep.”

WRAP-UP ACTIVITY (10 MIN)

Students will share their program with the class and sing and dance with KIBO to their favorite Sukkot song.

Theme 5: Hoshana Rabbah and Gratitude

Lesson 16: Arrival in Israel

OVERVIEW

In this lesson, students will make a representation of the Western Wall to symbolize the Jewish homeland of Israel. They will program KIBO to approach “Israel” as they are introduced to maps and routes.

ACTIVITIES

- The Holy Land (15 minutes)
- The Western Wall (10 minutes)
- KIBO’s Trip to the Western Wall (25 minutes)
- Wrap Up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain where the Jewish people settled after 40-years of wandering

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Design process

POWERFUL IDEAS FROM SUKKOT

- ☐ Impermanence/Permanence
- ☐ Rejoice

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 16: Activities

THE HOLY LAND (15 MIN)

Watch “Israel Lives in Every Jewish Heart” on Youtube, <https://www.youtube.com/watch?v=kNu7Jd6zWPg> (Duration=2:02).

What is the Jewish holy land? Discuss the importance of Israel to the Jewish people. Have you or someone you know ever been to Israel? What do people do in Israel? You can remind them of landmarks like the dead sea, etc, making sure that the western wall is mentioned. After 40 years of wandering, the Jewish people built their permanent homes in Israel.

Introduce maps and routes: When we are giving people directions, it is important to tell them exactly where to go. One wrong turn can change the whole path and the destination. This is similar to the directions we send KIBO. Without a specific route, how would we get from one place to another? If we do not give KIBO specific instructions for movements, how can it move?

THE WESTERN WALL (10 MIN)

Students will build a representation of the Western Wall out of blocks or construction paper.

KIBO ACTIVITY: KIBO’S TRIP TO THE WESTERN WALL (25 MIN)

Students will program KIBO to move toward the Western Wall from its current location. What if the Western Wall was in a different location? Move the representation to a different part of the room and have the children program KIBO to reach the Western Wall again.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

How would you feel arriving in Israel after years of wandering? How would you continue this lesson and show that with a KIBO program?

Lesson 17: Permanent vs. Temporary

OVERVIEW

In this lesson, students will work together to identify the differences between temporary and permanent objects. Once sorted, the temporary objects will be attached to KIBO and programmed to move to represent the lack of a home for the Jewish people.

ACTIVITIES

- Permanent vs. Temporary (10 minutes)
- Sorting Activity (25 minutes)
- KIBO and Impermanence (15 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah
- Explain the difference between a sukkah and a house

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms

POWERFUL IDEAS FROM SUKKOT

- ☐ Impermanence/Permanence

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)

Lesson 17: Activities

PERMANENT VS TEMPORARY (10 MIN)

How do you say “permanent” and “temporary” in Hebrew?

Permanent	Kah-voo-ah	קבוע
Temporary	Zmah-nee	זמני

Ask students what the differences are between a sukkah and a house. Which one is permanent, and which one is temporary? What does it mean for something to be permanent or temporary? Give a couple examples around the classroom.

SORTING ACTIVITY (25 MIN)

Students will work in pairs. One person will draw things that are permanent and the other will draw things that are temporary in their lives. Put all drawings into a bucket and shake it up. In their KIBO groups, children will pick drawings out of the bucket and sort them. All the permanent drawings will be placed on the floor and all that is temporary will be placed on KIBO.

KIBO ACTIVITY: KIBO AND IMPERMANENCE (15 MIN)

Code KIBO to move around to represent impermanence with the pictures of temporary objects on top of it.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Students will share what drawings they found that were permanent and which were temporary. Teachers will ask them how they knew the difference.

Lesson 18: Building a Permanent House

OVERVIEW

In this lesson, students will build a house and program KIBO to act as the Jewish people arriving to a place of permanence, a “home.”

ACTIVITIES

- A House vs. A Sukkah (10 minutes)
- Building a House (15 minutes)
- Arriving Home (25 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah
- Explain why we are grateful during Sukkot
- Explain the difference between a house and a sukkah

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Representation

POWERFUL IDEAS FROM SUKKOT

- ☐ Gratitude

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ Blue Light Block/Output
- ☐ White Light Block/Output

Lesson 18: Activities

A HOUSE VS A SUKKAH (10 MIN)

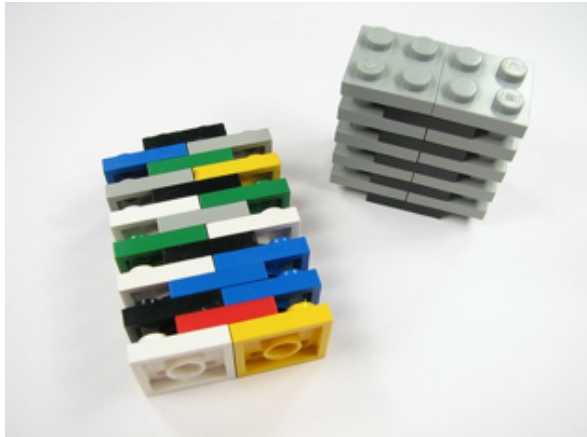
Introduce lesson content and activity

Discuss what is different about building a sukkah and building a house. Review rules of building a sukkah with Dr. Seuss-style Sukkot poem.



Lesson 18: Activities

Introduce sturdy building techniques, such as being able to knock down Legos built directly on top of each other instead of in an interlocking pattern.



BUILDING A HOUSE (15 MIN)

In this activity, students will use Legos to build a house on the floor, representing permanence. It is important that this permanent structure has a roof and four walls.

KIBO ACTIVITY: ARRIVING HOME (30 MIN)

KIBO will act as the Jewish people arriving at their permanent home rather than carrying materials for their temporary home on their backs. Students will program KIBO to move toward the house and act excited (spin around, shake, sing, or beep), showing that KIBO (aka the Jewish people) has made it to its permanent home. Once KIBO is at the house and has shown excitement, program for a white light to turn on and then a blue light to represent the Jewish people arriving in permanency.

Example Blocks:



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WRAP-UP ACTIVITY (10 MIN)

Remind children that in lesson 4 they built a sukkah and in lesson 18 they built a house. Or, draw their attention to examples (e.g. pictures, videos) of people building a house and building a sukkah. How were they built and decorated differently? Why did you make your house the way that you did? Explain your house to your classmates.

Lesson 19: Gratitude and Hoshana Rabbah Part 1

OVERVIEW

In this lesson, students will explain why they are thankful or what they want to apologize for. Their answers will be written on a combined 7 pieces of paper and strung together to create a decoration for the Sukkah. It will then be attached to KIBO.

ACTIVITIES

- Gratitude Discussion (10 minutes)
- Gratitude Activity (20 minutes)
- Gratitude Decorations (20 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify a sukkah
- Explain why we are grateful during Sukkot
- Explain what we do in the sukkah

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Control Structures
- ☐ Representation

POWERFUL IDEAS FROM SUKKOT

- ☐ Gratitude
- ☐ Rejoice
- ☐ Hoshana Rabbah

Lesson 19: Activities

GRATITUDE DISCUSSION (10 MIN)

What are we grateful for during Sukkot? We are lucky to live in permanence/houses, no longer wandering through the desert. Based on the following passage, when we sit in the sukkah, we appreciate all that God gave us in our permanent homes:

The Rashbam, R. Shemuel Ben Meir, lived in France in the 12th century. He was one of Rashi's brilliant grandsons and is known for his Talmud and Bible commentaries. [Why do I command you to do this?... Do not say in your hearts, "My own power and the might of my own hand have won this wealth for me. Remember that it is the Lord your God who gives you the power to get wealth" (Deuteronomy 8:17-18). Therefore, the people leave houses filled with good at the harvest season and they dwell in sukkot as a reminder that they had no property in the desert or homes to inhabit. This is why God designated Sukkot at the harvest season, so that a person's heart should not grow haughty because of houses filled with everything good, lest they say: "Our hands made all of this wealth for us."

What do you do to show that you are grateful?

GRATITUDE ACTIVITY (20 MIN)

Students will write or draw something they are thankful for or want to apologize for on a piece of paper. They will come up with a combined 7 pieces of paper to represent the importance of the 7th day of Sukkot, Hoshana Rabbah.

KIBO ACTIVITY: GRATITUDE DECORATIONS (20 MIN)

They will then connect pieces of paper together within their group to form a decoration for their sukkah. Attach the ring of gratitude to KIBO.



Example:

WRAP-UP ACTIVITY (10 MIN)

What makes you feel grateful or do you want to ask for forgiveness for? Share with the class some things that you wrote. What are you going to do better next year?

Lesson 20: Gratitude and Hoshana Rabbah Part 2

OVERVIEW

In this lesson, students will program KIBO to move in a parade with their rings of gratitude. The parade will end at a Sukkah and rejoice.

ACTIVITIES

- Hoshana Rabbah (10 minutes)
- Decorate KIBO (15 minutes)
- KIBO Parade (25 minutes)
- Wrap-up Activity (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the number of days in Sukkot
- Identify Yom Kippur and Hoshana Rabbah
- Explain the significance of the final day of Sukkot

POWERFUL IDEAS FROM COMPUTER

SCIENCE

- ☐ Algorithms
- ☐ Control Structures
- ☐ Representation

POWERFUL IDEAS FROM SUKKOT

- ☐ Hoshana Rabbah
- ☐ Gratitude
- ☐ Rejoice

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)

Lesson 20: Activities

HOSHANA RABBAH (10 MIN)

Discuss Hoshana Rabbah. There are seven days in Sukkot and the last day is this Day of Forgiveness. In the last activity you talked about what you are grateful for and asked for forgiveness by discussing what you can do differently next year. What other holiday has to do with asking for forgiveness? Yom Kippur, the Day of Atonement.

The Great “Hoshanah”	Hoshanah Rabbah	הושענא רבה
Day of Atonement	Yom Kippur	יום כפור

DECORATE KIBO (15 MIN)

Students will attach previously made Sukkah and ring of gratitude to KIBO and add decorations as they wish.

KIBO ACTIVITY: KIBO PARADE (25 MIN)

KIBO has to move seven times (represent Hoshana Rabbah being 7th day of sukkot). Have KIBO parade with each group’s ring of gratitude attached. The KIBO parade will end at a Sukkah that the children previously made. At the end, KIBO spin (represent dance) to show the importance of working together and how lucky we all are.

Example Blocks:



WRAP-UP ACTIVITY (10 MIN)

Teachers will ask students why they think we celebrate Sukkot every year. What do they think is important about this holiday? Why do we ask for forgiveness?

OPTIONAL EXTENSION (15 MIN)

When all children’s projects are ready, invite family, friends, and community members to view their KIBO parade and celebrate Sukkot.