Limudei Code-Esh: Yom Ha'atzmaut

An Intermediate KIBO Coding Curriculum
Integrated with Jewish Education

Using the Coding as Literacy (CAL) approach developed by

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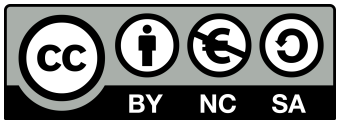
This curriculum was developed by Rachel Viselman and the DevTech Research Group under supervision of Professor Marina Umaschi Bers. Its creation utilized both novel and existing content developed over many years of work with the KIBO programming environment, developed in part by Dr. Bers' DevTech Research 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 preK - 12 students 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

LESSONS

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, Yom Ha'atzmaut, and Literacy are represented throughout this curriculum, and are described below.

Computer Science Powerful Ideas

This is designed as an intermediate curriculum for children who have some 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 1-7, 10-18, 20
Modularity	Breaking down tasks or procedures into simpler, manageable units that can be combined to create a more complex process	Lessons 3-4, 8-12, 17, 19-20
Control Structures	These structures determine the order or sequence in which instructions are followed within an algorithm or program	Lessons 9-10, 12-18, 20
Representation	The idea that symbol systems can represent specific ideas or concepts	Lessons 2-4, 6-10, 13, 15-17, 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 1-2, 4-13, 16-20
Debugging	A strategy for iterating and repairing issues in a program of designed artifact	Lessons 5, 7, 12, 14-16

Yom Ha'atzmaut Powerful Ideas

The **powerful ideas from Yom Ha'atzmaut** include: Israel, State, Independence, Celebration, Symbols, and Key Figures. (see Table 2).

Table 2: Yom Ha'atzmaut Powerful Ideas

Powerful Ideas	Definition	Relevant Lessons
Israel	Israel is a country in the Middle East that gained recognition as an independent state in 1948. This independence day is called Yom Ha'atzmaut	Lessons 1-8, 11-20
State	An independent state has its own land, money, language, flag, symbol, government, national anthem, stamps, and army.	Lessons 1, 7, 12
Independence	Soldiers fought for Israel to become a state separate from its neighboring countries, one with its own government, land, money, flag, symbol, national anthem, stamps and army.	Lessons 2-5, 7-12, 17-20
Celebration	The anniversary of the state of Israel's independence is celebrated with flags, music, parades, festive foods and prayers for our country.	Lessons 4, 14-20
Symbols	The symbol of the state of Israel is one of the contributing factors to it as an independent state. Israel's symbol is made up of two olive branches and a menorah in the middle with the word Israel underneath.	Lessons 5, 11, 12, 19-20
Key Figures	The individuals who contributed to the establishment of the State of Israel, making it what it is today.	Lessons 8-10

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 1-7, 9-18, 20
Movement Blocks	Lessons 1-7, 10-18, 20
Spin/Shake Block	Lessons 1-5, 7, 10-11, 13-18, 20
Light Blocks/Output	Lessons 1-7, 10-11, 13-18, 20
Sing/Beep Blocks	Lessons 1-5, 7, 10-11, 13-18, 20
Sound Recorder	Lessons 17, 18, 20
Sound Recorder Blocks	Lessons 17, 18, 20
Sound Sensor	Lessons 6, 18
Wait for Clap Block	Lesson 18
Repeat/End Repeat Blocks	Lessons 9-10, 13-18, 20
Number Parameters	Lessons 9-10, 13-14, 16-18, 20
Distance/Light Sensor	Lessons 13-18, 20
Marker Extension Module	Lesson 11

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 Yom Ha'atzmaut. 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 Yom Ha'atzmaut
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 Yom Ha'atzmaut. Students will learn about why Yom Ha'atzmaut 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
Theme 1: History of Yom Ha'atzmaut	
Lesson 1: What do you know about Israel (60 minutes)	In this lesson, students will review the KIBO blocks and the significant features of Israel by sending KIBO on a treasure hunt.
Lesson 2: What is Yom Ha'atzmaut (60 minutes)	In this lesson, students will learn about sequencing and how it relates to the Hebrew calendar and beginning of Yom Ha'atzmaut.
Theme 2: Israel's Independence	
Lesson 3: An Independent Country (60 minutes)	In this lesson, students will learn about government by separating into two groups and coming up with rules for how to use KIBO.
Lesson 4: Independence Day (60 minutes)	In this lesson, students will separate into two groups, one will program KIBO to celebrate Independence Day in their country and the other will program KIBO to celebrate as they think it would be in Israel.
Lesson 5: KIBO and Language (60 minutes)	In this lesson, students will learn about the Hebrew language and some vocabulary words through a matching game with KIBO.
Lesson 6: Locate Israel (60 minutes)	In this lesson, students will learn about Israel's location on the map by programming KIBO to find Israel on a world map.
Lesson 7: Significance of a State (60 minutes)	In this lesson, students will work together as if they are one government and come up with KIBO constraints that it has to follow.
Theme 3: Symbols and Key Figures	
Lesson 8: Key Figures of Yom Ha'atzmaut (60 minutes)	In this lesson, students will decorate their KIBOs to look like the Key Figures of Israel's Independence and discuss their importance.
Lesson 9: Pioneers of Israel Play Part 1 (60 minutes)	In this lesson, students will learn about repeat blocks and plan a play about the Independence of Israel with KIBOs.

Lesson 10: Pioneers of Israel Play Part 2 (60 mins)	In this lesson, students will learn about the key figures in the Independence of Israel through the production of a play using the programs they previously created for KIBO in Lesson 9.
Lesson 11: The Israeli Flag (60 minutes)	In this lesson, students will learn about the flag of Israel by programming KIBO to draw the Israeli flag.
Lesson 12: The Symbol of the State of Israel (60 minutes)	In this lesson, students will learn about the symbol of the state of Israel by collecting parts of the symbol around the room to create one complete and accurate symbol.
Theme 4: Israel Today	
Lesson 13: Thinking about Israel (60 minutes)	In this lesson, students will learn about the distance and light sensors by "visiting Israel." They will consider themselves visitors in Israel walking through a KIBO-map of the most well-known cities.
Lesson 14: Israeli Food (60 minutes)	In this lesson, students will program KIBO to make their favorite Israeli food.
Lesson 15: Innovations of Israel (60 minutes)	In this lesson, students will learn about the innovations of Israel and use KIBO to move from Israel on the map to each place that Israel's innovations are now in use.
Lesson 16: Exploring Israel (60 minutes)	In this lesson, students will make representations of some of the well-known places to visit in Israel and send KIBO on an adventure to explore them.
Theme 5: Celebration	
Lesson 17: Hatikvah Recording (60 minutes)	In this lesson, students will separate into KIBO groups to record pieces of the Hatikvah and program their KIBOs to gather.
Lesson 18: KIBO Dance Along (60 minutes)	In this lesson, students will program KIBO to dance with them to Yom Ha'atzmaut songs.
Lesson 19: KIBO Parade Part 1 (60 minutes)	In this lesson, students will decorate KIBO to represent their favorite part of Yom Ha'atzmaut or Israel and plan their program for the KIBO parade.
Lesson 20: KIBO Parade Part 2 (60 minutes)	In this lesson, students will program KIBO to move around school in a Yom Ha'atzmaut Parade to celebrate the independence of Israel.

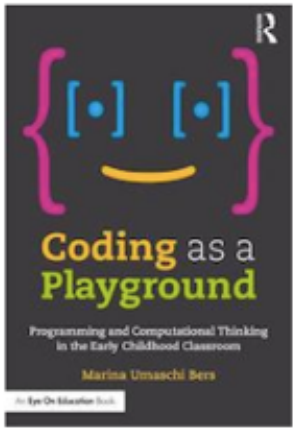
MATERIALS

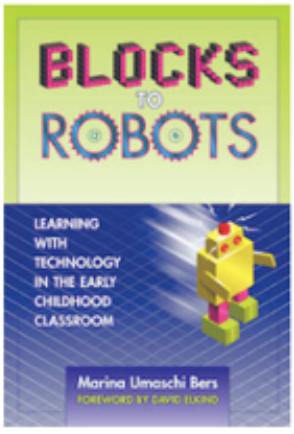
Since this curriculum is based on KIBO the main material necessary for the students are the KIBO robot and programming blocks. More information is provided in lessons that use these pages.

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.

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 first through third grade. The curriculum is s 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 were designed by a 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 of Yom Ha'atzmaut

Lesson 1: What do you know about Israel?

OVERVIEW

In this lesson, students will review the KIBO blocks and the significant features of Israel by sending KIBO on a treasure hunt.

ACTIVITIES

- The Significance of Israel (10 minutes)
- KIBO Robot Parts (10 minutes)
- KIBO Treasure Hunt (30 min)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Understand the importance of Israel to the Jewish people
- identify significant characteristics, foods, symbols, and places in Israel

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Software/Hardware

☐ Design Process

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ State

KIBO CONCEPTS

☐ Begin/End Blocks

☐ Movement Blocks (Forward, Backward, Left, Right, Spin, Shake)

☐ Spin/Shake Blocks

☐ Sing/Beep Blocks

☐ Light Blocks/Output

Lesson 1: Activities

THE SIGNIFICANCE OF ISRAEL (10 MIN)

Begin a discussion about the importance of Israel. Ask students, *what do you know about Israel? Why is Israel important to the Jewish people?*

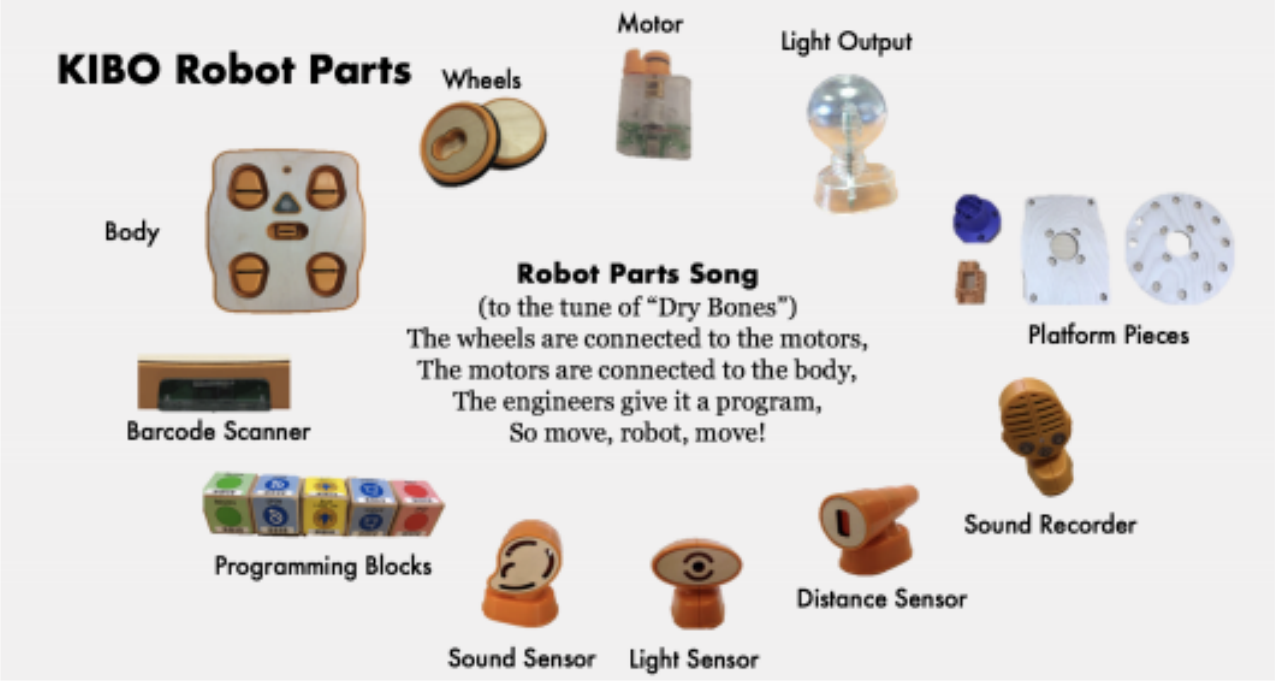
Print out images of objects, foods, symbols, and places significant to Israel or cut out the pictures in **Appendix A**. Then, show these pictures to the class and label them.

KIBO ROBOT PARTS (10 MIN)

Students will review the KIBO body parts song. Take out KIBOs and blocks. Explain to students that today they will be learning how to put together the different parts of the KIBO robot. Show students a KIBO robot body. Ask students: *What parts do you see through the clear backside of KIBO? What do you think those parts do? What do the batteries do? What are some other objects you have seen that have the same function?* (e.g. KIBO's wheels are like the tires on a car)

Then give a demo of how to build, scan, and test a simple program. In particular, it will be important to make sure that motors' green dots are visible through the bottom of KIBO when attaching the to the robot's body. Then, wheels are attached to these motors.

Using the KIBO parts guide below, introduce the KIBO robot's key parts and their functions. Teach the "Robot Parts Song" and have students sing and dance along. Explain to students that the song helps us understand how to put the KIBO robot together. Demonstrate how to attach the wheels, motors, and art platforms.



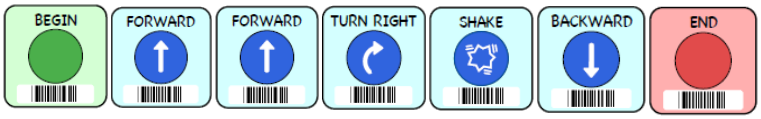
Students will then scatter the images significant to Israel from the previous activity around the classroom.

Lesson 1: Activities

KIBO ACTIVITY: KIBO TREASURE HUNT (30 MIN)

In order to review the KIBO movement blocks, students will send KIBO on a treasure hunt to collect the treasures previously created and showcase what is special and unique about Israel. Tell the children to consider how they want KIBO to move to signify that he has found a piece of treasure and is ready to move to the next. Ask students: *How will you know KIBO has the treasure? Should KIBO shake? Flash a light?*

Example Blocks:



Since this is the first experience students have with KIBO in this curriculum, teachers may want to assist their students in these first interactions. It is particularly important to help students trouble-shoot and cope when KIBO does not do what they want.

WRAP-UP DISCUSSION (10 MIN)

Students gather in a central area of the classroom and discuss their KIBO treasure hunt activity. Ask students, *which treasures did you collect? What KIBO program did you use to collect them? What would you do differently next time? How would the activity change if the pictures were important to our country?*

Lesson 2: What is Yom Ha'atzmaut?

OVERVIEW

In this lesson, students will learn about sequencing and how it relates to the Hebrew calendar and beginning of Yom Ha'atzmaut.

ACTIVITIES

- When is Yom Ha'atzmaut (10 minutes)
- Sequencing the Month of Iyar (10 minutes)
- KIBO Calendar Activity (30 min)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the date Yom Ha'atzmaut occurs on the Hebrew calendar
- Develop a connection and love for Israel by learning about its history and celebrating Yom Ha'atzmaut
- Describe Yom Ha'atzmaut as a day when we commemorate Israel's independence day
- Recall that we first commemorate Yom Hazikaron by remembering all the fallen soldiers that gave up their lives for the sake of Israel.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Representation

☐ Design Process

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 2: Activities

WHEN IS YOM HA'ATZMAUT (10 MIN)

Introduce the holiday of Yom Hazikaron and explain that it is a holiday to remember all the fallen soldiers that gave of their lives for the sake of the state of Israel. In commemoration, people light a candle. Yom Hazikaron is the day of the 4th of Iyar. Then, at sundown, Yom Ha'atzmaut begins and lasts until sundown on the 5th of Iyar. Yom Ha'atzmaut is a day when we commemorate Israel's independence. Israel's Independence was on the 5th of Iyar in 1948.

Teach students the following Hebrew vocabulary.

עַצְמָאוּת	atzma'ut	Independence
מְדִינָה	m'dina	State
אֶרֶץ	eretz	Land

SEQUENCING THE MONTH OF IYAR (10 MIN)

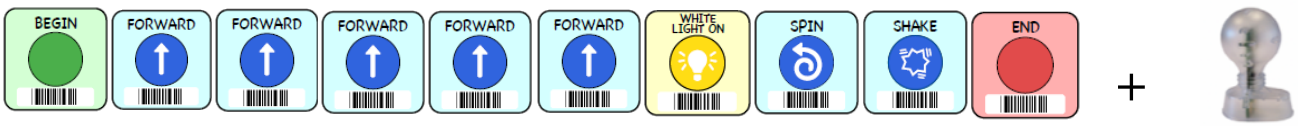
Students will make a calendar of the month of Iyar to discuss the concept of sequencing. Ask students, *why does order matter when you read a calendar? What would happen if it was out of order?* Explain that when we make a KIBO program, the program also has an order. *What happens if the program is not in order?* Tell students that the ordering of a program is called sequencing.

KIBO ACTIVITY: KIBO CALENDAR ACTIVITY (30 MIN)

Students will use the previously made calendar of the month of Iyar to program KIBO to reach the 5th day of the month. When KIBO reaches this date, have KIBO perform an action that symbolizes a ritual or tradition from Yom Hazikaron, and then another action to signify one from Yom Ha'atzmaut.

> For example: They will program KIBO to move forward 5 blocks, light a candle in honor of the fallen soldiers for Yom Hazikaron, and then dance to signify the celebration of Yom Ha'atzmaut.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom and take turns showing their calendars and programs. Ask students, *how did you choose what actions KIBO would perform for the two holidays? What would you do differently next time when programming KIBO? How do you think this would look different if it was your monthly calendar compared to the Hebrew calendar?*

Theme 2: Israel's Independence

Lesson 3: An Independent Country

OVERVIEW

In this lesson, students will learn about government by separating into two groups and coming up with rules for how to use KIBO.

ACTIVITIES

- Components of Independent States (10 minutes)
- KIBO Rule Creations (10 minutes)
- Combining KIBO Rules (30 minutes)
- Wrap Up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recall what makes Israel an independent state

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Modularity

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 3: Activities

COMPONENTS OF INDEPENDENT STATES (10 MIN)

Ask students, *what makes Israel an independent state?* An independent state has its own land, money, language, flag, symbol, government, national anthem, stamps, and army.

Introduce the following vocabulary words that represent what makes an independent country.

עַצְמָאוּת	atzma'ut	independence
מְדִינָה	m'dina	state
אֶרֶץ	eretz	land
כֶּסֶף	kesef	money
שָׂפָה	safa	language
דֶּגֶל	degel	flag
מֶמְשָׁלָה	memshala	government
הִמְנוֹן	himnon	national anthem
בּוּלִים	bulim	stamps
צָבָא	tzava	Army

KIBO RULE CREATIONS (10 MIN)

Students will separate into two groups (representing two countries) and each group will come up with a class rule for how to use KIBO. The groups will then combine to represent one combined country.

An example of a rule would be having a classmate cover the blocks surrounding the one you are scanning as you move through the row of blocks. Another group might make their rule that the person with the KIBO will have to block the barcodes on their own. Maybe another group would say that no one should touch the blocks once they are down and the KIBO must be held with two hands the whole time.

KIBO ACTIVITY: COMBINING KIBO RULES (30 MIN)

Students will work together with classmates from the other group to represent one combined country. They will work together with members of the other group to program KIBO based on both of their rules. Can they compromise to make those two rules into one and program KIBO? Then the groups will go back to their original groups, independent countries, and program KIBO using only their rule.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom for a discussion about what it is like to have an independent government compared to a combined government. Ask students, *How is it easier or harder being an "independent country" compared to a combined one? How much harder would it be if a third "country" was formed and added to the combined country?*

Lesson 4: Independence Day

OVERVIEW

In this lesson, students will separate into two groups; one will program KIBO to celebrate Independence Day in their country and the other will program KIBO to celebrate as they think it would if it were in Israel.

ACTIVITIES

- Independence Day in Israel and Where You Live (10 minutes)
- Preparation for Independence Day (15 minutes)
- KIBO Independence Celebrations (25 minutes)
- Wrap Up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Differentiate between the way they celebrate Yom Ha'atzmaut in their country compared to in Israel

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Modularity

☐ Design Process

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

☐ Celebration

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 4: Activities

INDEPENDENCE DAY IN ISRAEL AND WHERE YOU LIVE (10 MIN)

Students will gather for a conversation about the celebration of Yom Ha'atzmaut.
Introduce students to the following Hebrew term.

עַצְמָאוּת	atzma'ut	independence

Ask students, *how do we celebrate independence day in our country? How do you think Yom Ha'atzmaut is celebrated in Israel? Has anyone ever been to Israel on Yom Ha'atzmaut?*
On Yom Ha'atzmaut in Israel, there are parades and dancing, people pray for Israel's safety, they wave Israeli flags, sing Israeli songs, sing the Hatikvah, wear white and blue, have barbeques, fireworks, and a day off from school and work.

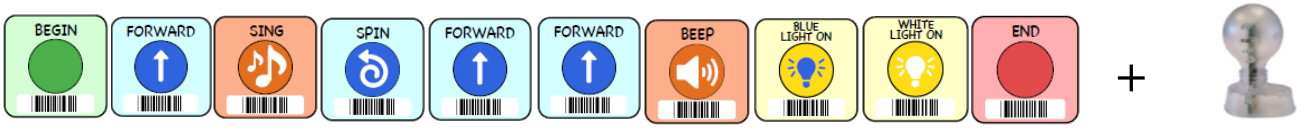
PREPARATION FOR INDEPENDENCE DAY (15 MIN)

Separate the class into groups and assign half the groups to plan a KIBO program to celebrate Independence day in their country and the other half to celebrate independence day in Israel. Allow students to prepare by making crafts, drawings, decorating KIBO, and doing research about independence day.

KIBO ACTIVITY: KIBO INDEPENDENCE CELEBRATION (25 MIN)

Students will use this time to program and decorate KIBO to celebrate Independence Day in their country or in Israel, depending on which group they were assigned.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to discuss their Independence Day programs. Ask students, *what is similar about the way we celebrate independence day and the way people celebrate independence day in Israel? What is the difference?*

Lesson 5: KIBO and Language

OVERVIEW

In this lesson, students will learn about the Hebrew language and some vocabulary words through a matching game with KIBO.

ACTIVITIES

- The Language of Israel (5-10 minutes)
- Hebrew Vocabulary Review (20 minutes)
- KIBO Matching Game (20 minutes)
- Wrap-Up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Understand what makes Israel an independent state
- Recall that Hebrew is the national language of the State of Israel

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Design Process

☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

☐ Symbols

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 5: Activities

THE LANGUAGE OF ISRAEL (10 MIN)

Ask students, *what language do they speak in Israel? Where do you hear that language in your life?* In Israel they speak Hebrew. Hebrew is the national language of the State of Israel. *What is the national language where you live?* Introduce students to the following Hebrew vocabulary.

שָׂפָה	safa	Language
עִברִית	ivrit	Hebrew

Explain "debugging" to students. Explain to students that debugging is a method used to understand how to fix things when engineers program robots, and the robots do not work. By identifying these problems and different solutions to solve them, students are debugging.

HEBREW VOCABULARY REVIEW (20 MIN)

Review the Yom Ha'atzmaut Hebrew vocabulary from Lesson 3.

חֲלוּצִים	halutzim	pioneers
עַצְמָאוּת	atzma'ut	independence
מְדִינָה	m'dina	state
אֶרֶץ	eretz	land
כֶּסֶף	kesef	money
שָׂפָה	safa	language
דֶּגֶל	degel	flag
מֶמְשָׁלָה	memshala	government
הִמְנוֹן	himnon	national anthem
בּוּלִים	bulim	stamps
צָבָא	tzava	Army

Lesson 5: Activities

Once the terms are reviewed, separate students into groups and have them cut out the English, Hebrew, and transliteration of each word based off of **Appendix B**.

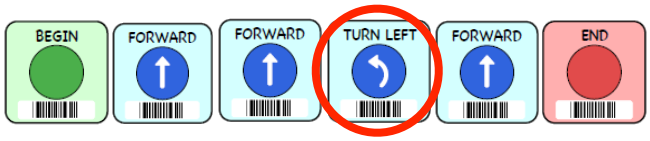
KIBO ACTIVITY: KIBO MATCHING GAME (20 MIN)

Students will play a matching game with the vocabulary terms and KIBO. Students will take the letter cut-outs from the Hebrew Vocabulary Review activity and spread them around throughout a designated area. They will then program KIBO to move and collect the matching terms. If they direct KIBO to the wrong word, they will have to debug KIBO to the right one. Encourage them to practice debugging.

Teachers start by having children test and watch their KIBO as many times as they need to identify the bug. Teachers may prompt the students with questions such as, *"why did KIBO do something different than you wanted" or "what can you do to problem solve that issue?*" Remind students not to forget to check both hardware (KIBO's parts) and software (block program) when debugging. Ask friends for help if needed (some teachers like "ask 3, then me").

Example Blocks:

Example Debugging:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to talk about their KIBO programmed matching game. Ask students, *what went well? What was difficult about using KIBO to find the matches?* Then have students share a couple of the matches they found.

Lesson 6: Locate Israel

OVERVIEW

In this lesson, students will learn about Israel's location on the map by programming KIBO to find Israel on a world map.

ACTIVITIES

- Where is Israel? (10 minutes)
- The Shape of Israel (10 minutes)
- Introduction of the Sound Sensor (15 minutes)
- KIBO Finds Israel (15 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recognize the shape of the map of Israel
- Locate Israel on the globe.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Representation

☐ Design Process

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 6: Activities

WHERE IS ISRAEL? (10 MIN)

Teachers will hold up a world map and ask their students to point to Israel. They will then review the following Hebrew terms.

מְדִינָה	m'dina	state
אֶרֶץ	eretz	land

THE SHAPE OF ISRAEL (10 MIN)

Students will learn about the shape and geography of Israel by creating the shape of the state with their bodies in a yoga pose. They will stand in the "tree pose" with their right foot leaning against the inner part of their left knee, similar to the pose below. After they do the pose, teachers may project the map on a low wall and let kids take turns standing in the light to match the map.

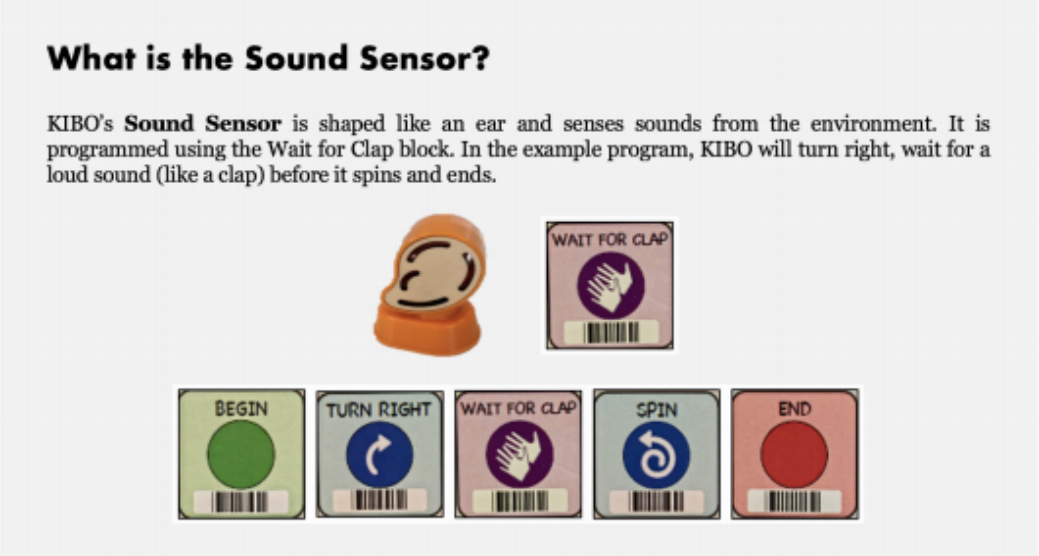
Then have students print or draw a map of the world for the following program activity.

INTRODUCTION OF SOUND SENSOR (15 MIN)

Teach students about the sound sensor and wait for clap block.

Introduce the term event, which is an action that causes something to happen. The action here is the clap, which causes KIBO to continue its program.

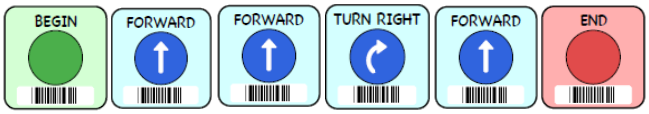
Lesson 6: Activities



KIBO ACTIVITY: KIBO FINDS ISRAEL (15 MIN)

Students will lay their map on the floor and then program KIBO to find Israel on it.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to show their maps and programs. Ask students to share where their starting and ending points were on the map and how their program got there.

Lesson 7: Significance of a State

OVERVIEW

In this lesson, students will work together as if they are one government and come up with KIBO constraints that it has to follow.

ACTIVITIES

- History of Yom Ha'atzmaut (10 minutes)
- Silent Organization (10 minutes)
- KIBO Constraints Activities (30 minutes
- Wrap -up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Understand what led to Israel becoming an independent state
- Identify what makes up a state

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Representation

☐ Design Process

☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Independence

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output

Lesson 7: Activities

HISTORY OF YOM HA'ATZMAUT (10 MIN)

Ask students, *does anyone know what led to Israel becoming an Independent state?* Israel fought in a war with six of its neighboring countries to become an independent state in 1948. It was determined at this time that the land would be split between the Jewish and the Palestinian people. Then, in 1967, there was another war, called the Six Day War, where Israel took control over more land. *Teachers bring out a map of Israel for this part of the discussion* and explain that Israel took over the Gaza Strip, the Golan Heights, Sinai and the West Bank in 1967. However, in 1982, Israel gave the Sinai Peninsula back to Egypt. There is still controversy over who should rule these areas of the middle east.

Review the following Hebrew terms.

עַצְמָאוּת	atzma'ut	independence
מְדִינָה	m'dina	state

SILENT ORGANIZATION (10 MIN)

Israel became a state for agreement purposes. It became a combined culture with its community under one government. The government of a country comes up with its own rules that citizens have to follow. We do not always think about these rules. Most of the time, they are not talked about. The rule of this activity is that you have to order yourselves in height order without talking.

KIBO ACTIVITY: KIBO CONSTRAINTS ACTIVITIES (30 MIN)

Students will work together as if they are the government of their state. They will create a constraint for KIBO that determines what area of the space is the state (for example, while KIBO is on the carpet, it is in their governed state). Students will be working together to clean their country (the carpet) by using KIBO to move styrofoam blocks (or a similar classroom set of objects). Some classroom KIBOs will be programmed to "break the rules" by being programmed to do something different than requested within the state (i.e. not cooperating and moving around blocks). Ask students, *what changed in the "state" when the KIBOs broke the rules?* (ex. Less blocks were moved, it took longer to clean the carpet, etc.). Rules change when you leave the state. Why is it important to have a state of our own?

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to talk about the rules they made up as a "government". Ask students, *why is it important to have rules? Do every country and every state have the same rules? Why do you think some rules exist and others do not? How does KIBO's program change depending on the rules?*

Theme 3: Symbols and Key Figures

Lesson 8: Key Figures of Yom Ha'atzmaut

OVERVIEW

In this lesson, students will decorate their KIBOs to look like the Key Figures of Israel's Independence and discuss their importance.

ACTIVITIES

- Introduction of Key Figures (10 minutes)
- KIBO Key Figure Decorating (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recognize and recall the significance of Eliezer Ben Yehuda, Golda Meir, David Ben Gurion, and Theodor Herzl
- Identify the two main chalutzim, pioneers, of building a Jewish state for the Jewish people - Theodor Herzl and David Ben-Gurion.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Modularity

☐ Design Process

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

☐ Key Figures

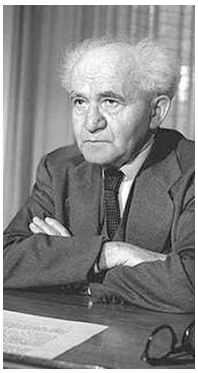
Lesson 8: Activities

INTRODUCTION OF KEY FIGURES (10 MIN)

Ask students, do you know what Zionism is? Zionism is a movement for the establishment of Israel as an independent state. The father of Zionism was Binyamin Zeev Hertzel (Theodor Herzl). Theodor Herzl encouraged the Jewish people to move to Israel. He wrote "Der Juden Staat," meaning "The Jewish State" about the state of Israel and encouraged movement to Israel and donations to establish the land. He had a lecture called "Im Tirtzu Ein Zuo Agada", meaning "if you want it, it does not have to be a fairytale."

Explain the role of the Prime Minister and talk about who the first Prime Minister (David Ben Gurion) and first woman Prime Minister (Golda Meir) of Israel were. David Ben Gurion was one of the first pioneers to make Aliya (move to Israel) and the first Prime Minister of Israel. Ben Gurion also signed the Declaration of Independence. Students will then watch a video of David Ben Gurion reading the Declaration of Independence at https://www.youtube.com/watch?time_continue=110&v=BG95PmoeAkM&feature=emb_title.

Show students the following pictures of David Ben Gurion and Theodor Herzl.

	
Theodor Herzl (1860-1904)	David Ben-Gurion (1886-1973) First Prime Minister of Israel

KIBO KEY FIGURE DECORATING (30 MIN)

Students will form small groups and decorate their KIBOs to represent a key figure of Israel's independence. Teachers will then save the decorated KIBOs for the next two activities.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to introduce their KIBO versions of the key figures of Israel's independence.

Lesson 9: Pioneers of Israel Play Part 1

OVERVIEW

In this lesson, students will learn about repeat blocks and plan a play about the Independence of Israel with KIBOs.

ACTIVITIES

- Review Important People of Israel's Independence (10 minutes)
- Repeat Loops (10 minutes)
- Yom Ha'atzmaut Play Planning (30 minutes)
- Clean-Up (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recognize and recall the importance of the key figures in the establishment of the State of Israel
- Appreciate the dedication of the Chalutzim, pioneers of building a Jewish state for the Jewish people.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Modularity

☐ Control Structures

☐ Design Process

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Key Figures

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Repeat Loops
☐ Number Parameters
☐ Turntable and Stage

Lesson 9: Activities

REVIEW IMPORTANT PEOPLE OF ISRAEL'S INDEPENDENCE (10 MIN)

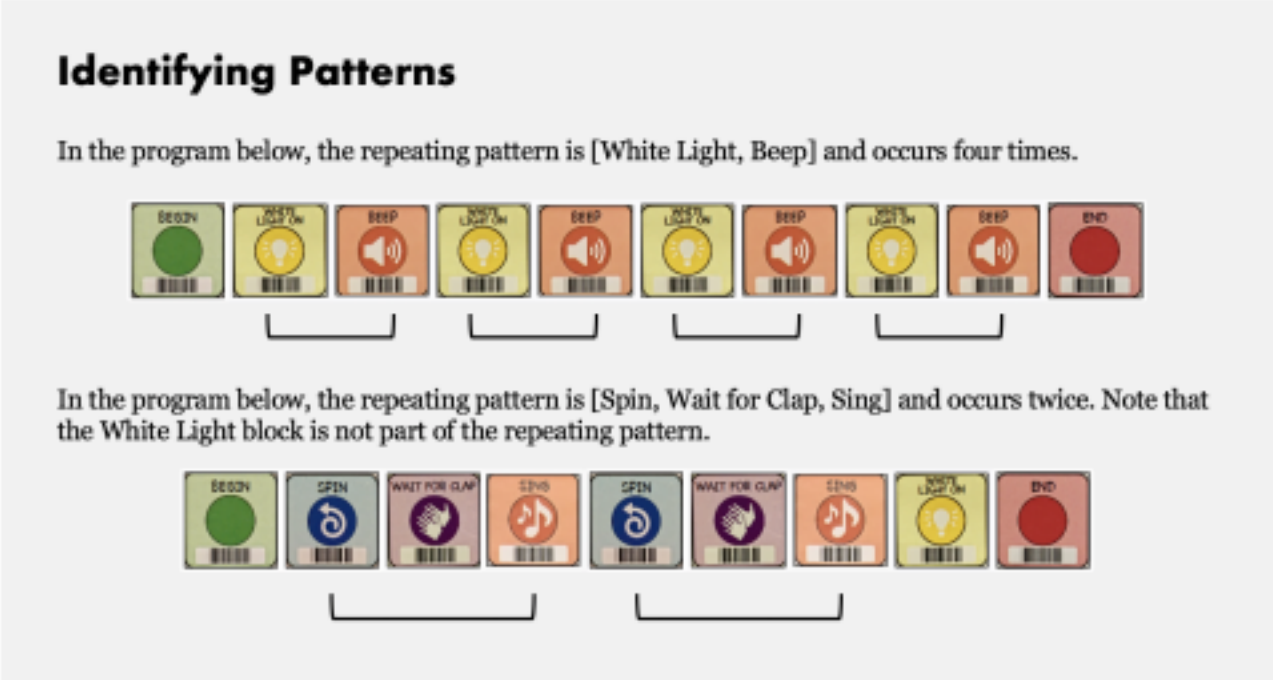
Teachers will use this time to review why Theodor Herzl and David Ben Gurion were significant to the establishment of Israel. Herzl was the father of Zionism. Does anyone remember what Zionism is? Herzl encouraged people to move to Israel, making him one of the primary supporters of Israel becoming an independent state. Ask students, who remembers who the first Prime Minister and first woman Prime Minister of Israel were? They were David Ben Gurion and Golda Meir. David Ben Gurion was the first Prime Minister of the state of Israel. He signed the Declaration of Independence.

Students will the watch a video about Eliezer Ben Yehuda, https://youtu.be/jzPDmhihPBM, and be able to describe him as the father of modern Hebrew. He was a halutz, someone who moved to Israel with the intention of working to establish a Jewish state, and he brought up the first children in 2000 years who spoke Hebrew as the main language in their home.

חֲלוּצִים	halutzim	pioneers

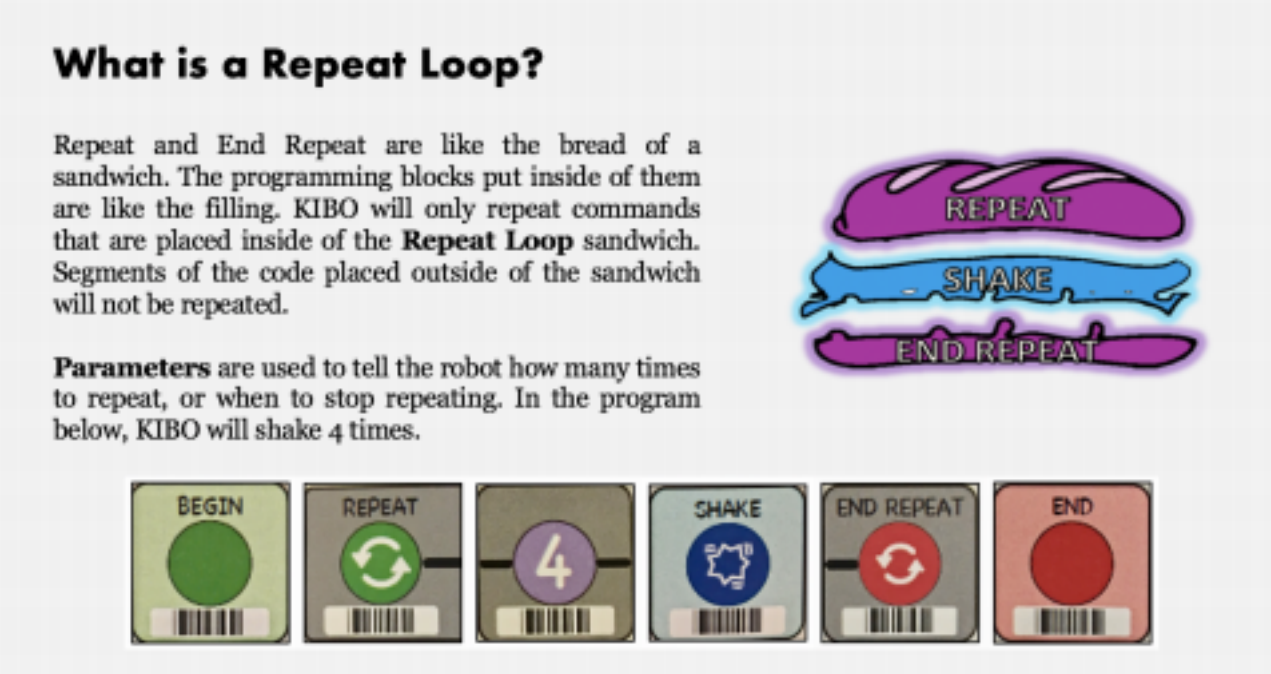
REPEAT LOOPS (10 MIN)

Introduce repeat loops. Take out the KIBOs and blocks and teach about repetition using the following program. Ask students: *What is the repeating pattern in this program? How many times does it repeat?*



Demonstrate to students that the Repeat and End Repeat blocks can be used to make programs that are shorter and more efficient. Make a sample program without repeat blocks and multiple of the same block, and then another program that performs the same action but with repeat loops. Show both programs to students and have a conversation to explore why they do the same actions and what repeat blocks do. Emphasize that the robot only repeats the instructions in between the Repeat and the End Repeat blocks.

Lesson 9: Activities



YOM HA'ATZMAUT PLAY PLANNING (30 MIN)

Students will gather in their groups from lesson 8. They use their KIBO versions of the key figures of Israel's independence to plan a play. The play will be programmed and acted out in lesson 10, so this activity is meant to plan what their KIBO will do and how they can incorporate the repeat loop. They also can use this time to make any scenery or crafts to incorporate. Encourage the students to use this as a dress rehearsal to practice their presentations for peers, write down what they want to say, etc.

For example, program KIBO to be a pioneer making Aliya with David Ben Gurion.

CLEAN-UP (10 MIN)

Students will clean-up their KIBO blocks and put their planning sheets in a safe place for when they will put on their play in lesson 10.

OVERVIEW

In this lesson, students will learn about the key figures in the Independence of Israel through the production of a

Lesson 10: Pioneers of Israel Play Part 2

play and the programs they previously created for KIBO in Lesson 9.

ACTIVITIES

- Key Figure Review (10 minutes)
- Debugging Plan for Play (15 minutes)
- KIBO Yom Ha'atzmaut Play (25 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recognize and recall the importance of the key figures in the establishment of the State of Israel
- Appreciate the dedication of the Chalutzim, pioneers of building a Jewish state for the Jewish people.

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Control Structure
- ☐ Modularity
- ☐ Design Process
- ☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

- ☐ Independence
- ☐ Key Figures

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right, Spin, Shake)
- ☐ Spin/Shake Blocks
- ☐ Sing/Beep Blocks
- ☐ Light Blocks/Output
- ☐ Repeat/End Repeat Block
- ☐ Number Parameters

Lesson 10: Activities

KEY FIGURE REVIEW (10 MIN)

Ask students, *who are the four important people to remember on Yom Ha'atzmaut? What did they do and why are they important? How did they make Israel what it is today?*

DEBUGGING PLAN FOR PLAY (10 MIN)

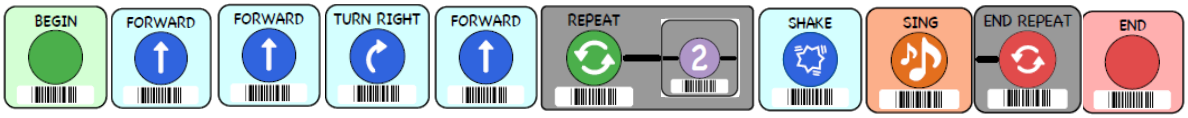
Students will make any final changes to their planning sheets (from lesson 9) for the KIBO play. Remind them that any changes they make are "problem-solving," and, in programming, that is "debugging."

Ask students, *who remembers what debugging is*?
Remind students of the concept of "debugging." Explain to students that debugging is a method used to understand how to fix things when engineers program robots, and the robots do not work. By identifying these problems and different solutions to solve them, students are debugging.

KIBO ACTIVITY: KIBO YOM HA'ATZMAUT PLAY (30 MIN)

Students will program their KIBOs using their plans from lesson 9 to act as the Key Figures of the Independence of Israel in a Yom Ha'atzmaut play.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to discuss their play. Ask students, *which characters did you choose? Why did you choose them? What did you program them to do and why? What was easy and what was difficult about this program?*

Lesson 11: The Israeli Flag

OVERVIEW

In this lesson, students will learn about the flag of Israel by programming KIBO to draw the Israeli flag.

ACTIVITIES

- The Flag of Israel (10 minutes)
- Craft Israeli Flag (10 minutes)
- KIBO Israeli Flag Program (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Understand what makes Israel an independent state
- Explain the origin story of the flag of Israel

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Modularity

☐ Algorithms

☐ Design Process

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Independence

☐ Symbols

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output
☐ Marker Extension Module

Lesson 11: Activities

THE FLAG OF ISRAEL (10 MIN)

Introduce students to the flag of Israel.

דֶּגֶל	degel	flag

	Israeli Flag

Explain to students the significance of the different parts of the Israeli flag. The white flag with blue stripes is based on the Tallit, or prayer shawl, which is also white and has either black or blue stripes. Ask students, *who has seen a tallit before? Where did you see it? Where do people wear it?* The symbol in the middle of the flag is the Star of David or Magen David. This flag became the national flag of Israel after its establishment as an independent state. It was based on a flag Theodor Herzl designed in 1895 before proposing the need for a Jewish state.

CRAFT ISRAELI FLAG (10 MIN)

Students will make Israeli flags out of construction paper, markers, and popsicle sticks.

KIBO ACTIVITY: KIBO ISRAELI FLAG PROGRAM (30 MIN)

Students will attach a pen (or extension tool as found on the KinderLab website at https://shop.kinderlabrobotics.com/Marker-Extension-Set-MOD-MARKER.htm) onto the back of KIBO and program KIBO to draw the Israeli flag on paper.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to discuss their flag-making activity. Students will, if they choose, show the class their KIBO drawings and KIBO programs. Ask students, *what was similar about drawing a flag and programming KIBO to do it? What was different? What was difficult and what was easy about the KIBO drawing?*

Lesson 12: The Symbol of the State of Israel

OVERVIEW

In this lesson, students will learn about the symbol of the state of Israel by programming KIBO to collect parts of the symbol around the room. Students will then create one complete and accurate symbol.

ACTIVITIES

- The Symbol of the State of Israel (10 minutes)
- The Parts of the Symbol of Israel (10 minutes)
- KIBO Symbol of Israel Puzzle (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Understand what makes Israel an independent state
- Recognize and draw the symbol of the state of Israel

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Modularity

☐ Control Structure

☐ Design Process

☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Independence

☐ Symbols

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Light Blocks/Output
☐ Repeat/End Repeat
☐ Number Parameters

Lesson 12: Activities

THE SYMBOL OF THE STATE OF ISRAEL (10 MIN)

Introduce students to the symbol of the state of Israel and Hebrew term for state.

	Symbol of the State of Israel

מְדִינָה	m'dina	state

Ask students, *what do you notice about the symbol of Israel? Where have you seen the object in the center before? Does anyone know what word is written in Hebrew on the bottom?* The symbol of the state of Israel is made up of a menorah in the center with two olive branches, one on either side. The word underneath the menorah says yisrael, meaning Israel in Hebrew.

THE PARTS OF THE SYMBOL OF ISRAEL (10 MIN)

Students will draw the separate pieces of the symbol of the state of Israel (Two olive branches, a menorah, and the word Israel in Hebrew) and scatter the pieces around the room.

KIBO ACTIVITY: KIBO SYMBOL OF ISRAEL PUZZLE (30 MIN)

Students will think about the separate pieces of the symbol of Israel from the last activity as different pieces to a puzzle. They will then use KIBO to collect the pieces and put together a completed puzzle of the symbol of the state of Israel. They will program KIBO to reach each piece of the symbol and then place the symbol on KIBO. Once they have collected all the pieces, they will put them together to create a finished picture.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom to share their symbols of the state of Israel. Ask students, *what was easy and what was difficult about this activity? What would you do differently if you already had the pieces and programmed KIBO to place them together? Would that be easier or more difficult than doing it with your hands? How so?*

Theme 4:
Israel Today

Lesson 13: Thinking about Israel

OVERVIEW

In this lesson, students will learn about the distance and light sensors by "visiting Israel." They will consider themselves visitors in Israel walking through a KIBO-map of the most well-known cities.

ACTIVITIES

- Introduce Light and Distance Sensors (10 minutes)
- KIBOs Representing the Cities of Israel (10 minutes)
- KIBO Map of Israel (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recognize that Jerusalem is the capital city that is important for 3 religions: Christianity, Islam, and Judaism
- State that Tel Aviv was the first city to be established by the chalutzim, pioneers
- Recall the importance of Israel.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Design Process

☐ Representation

☐ Control Structures

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

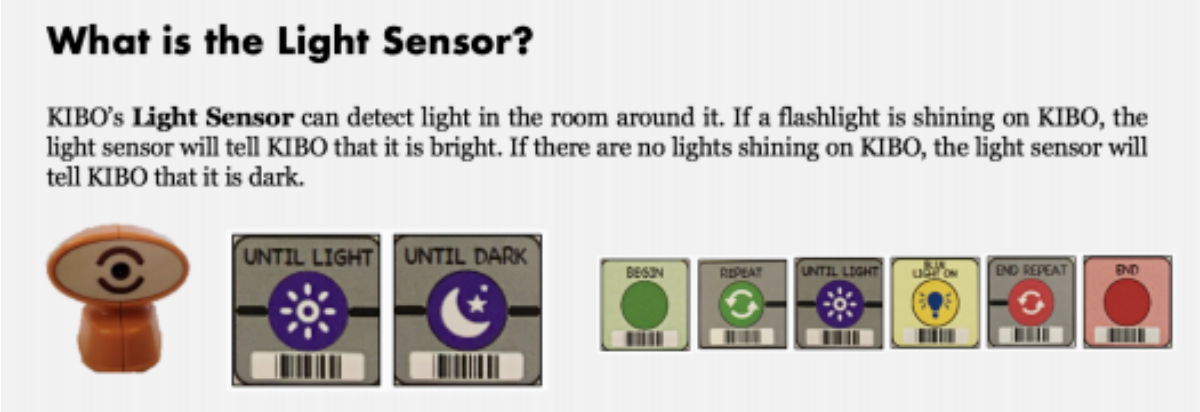
KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Repeat/End Repeat Blocks
☐ Number Parameters
☐ Light Blocks/Output
☐ Distance Sensor
☐ Light Sensor

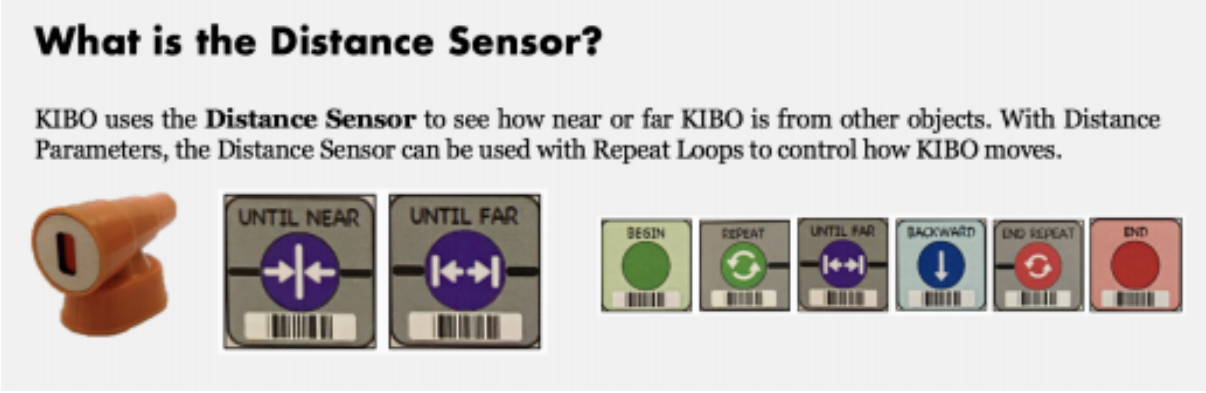
Lesson 13: Activities

INTRODUCE LIGHT AND DISTANCE SENSORS (10 MIN)

Take out the KIBOs and blocks. Explain to students that KIBO has some of the same senses that we (the ability to "see" light and dark, to feel touch, to speak) and that today they will learn how KIBO is able to "see" light and dark). Explain that KIBO needs special programming instructions to tell KIBO what to do with the information from its Light sensor. Show the Repeat and End Repeat blocks, which are now familiar, and the new Until Light/Until Dark parameter cards. Create two example programs together; one which uses the Until Light parameter and another which uses the Until Dark parameter. Run the programs, and have students discuss what the robot is doing in each scenario.



Then, introduce the Distance sensor. Create two example programs together; one which uses the Until Near parameter and another which uses the Until Far parameter. Run the programs, and have students discuss what the robot is doing.



KIBOS REPRESENTING THE CITIES OF ISRAEL (10 MIN)

Ask students, *what was the first city to be established in Israel?* It was Tel Aviv! Then ask, *what is the capital city of Israel?* The capital of Israel is Jerusalem. *What do you know about Jerusalem? Jerusalem is important to what other religions?* Jerusalem is important to people who observe Judaism, Christianity, and Muslim.

Then have students decorate their KIBOs to be different cities in Israel. For example, Tel Aviv is where Ben Gurion airport is, so one may decorate KIBO to hold a "welcome to Israel" sign and later program it to shake until someone gets close to it. Another example would be that Jerusalem has the Western Wall, so students may want to decorate KIBO as such.

Lesson 13: Activities

KIBO ACTIVITY: KIBO MAP OF ISRAEL (30 MIN)

Each KIBO will be decorated to represent a city in Israel as per the last activity. Now have students think about themselves as visitors in Israel walking through a KIBO-map of the most well-known cities (once KIBOs are decorated and programmed, they will be scattered around the room either freely or based on the map of Israel). As they approach each city or move away from the city, KIBO should be programmed to perform an action using the distance sensor's "until near" or "until far." Make use of the light sensor as well to describe the difference between day-time and night-time in the city.

Example Blocks:

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom. Ask students, *what was difficult about using the sensors? How did using the sensors help in making these programs? If you were to do this activity again, what would you do differently? Is there anything KIBO could not do that you wish it did for this activity?*

Lesson 14: Israeli Food

OVERVIEW

In this lesson, students will program KIBO to make their favorite Israeli food.

ACTIVITIES

- Researching Foods of Israel (10 minutes)
- Recipe Planning (10 minutes)
- KIBO Israeli Cooking (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify the culture of Israel, specifically that of the foods eaten

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Control Structures

☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Celebration

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Sing/Beep Blocks
☐ Repeat/End Repeat Blocks
☐ Number Parameters
☐ Light Blocks/Output
☐ Distance Sensor
☐ Light Sensor

Lesson 14: Activities

RESEARCHING FOODS OF ISRAEL (10 MIN)

Students will research the foods and dishes native to Israel, and then choose one that they want to "make" with KIBO.

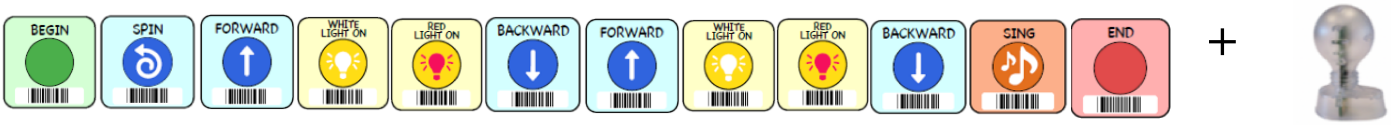
RECIPE PLANNING (10 MIN)

Students will take the recipe of choice from the opening activity and determine a plan for how KIBO could be programmed to "make" the food.

KIBO ACTIVITY: KIBO ISRAELI COOKING (30 MIN)

Students will program KIBO to "make" their favorite Israeli food/dish.

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 is 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.



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom. Ask students, *what foods did you choose to make? Why did you choose that food? How did you program KIBO to make it? What could you do differently?*

Lesson 15: Innovations of Israel

OVERVIEW

In this lesson, students will learn about the innovations of Israel and use KIBO to move from Israel on the map to each place that Israel's innovations are now in use.

ACTIVITIES

- Innovations of Israel (10 minutes)
- Where are Israel's Innovations Today (10 minutes)
- World Search for Israel's Innovations (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify Israel as a place of innovation
- Recognize objects made in Israel that are used in their lives

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Control Structures

☐ Representation

☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Celebrations

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Repeat/End Repeat Blocks
☐ Number Parameters
☐ Light Blocks/Output
☐ Sing/Beep Blocks
☐ Distance Sensor
☐ Light Sensor

Lesson 15: Activities

INNOVATIONS OF ISRAEL (10 MIN)

Introduce students to Israel as a place of innovation by using the following link.
https://www.israel21c.org/made-in-israel-the-top-64-innovations-developed-in-israel/

Choose some pictures of innovations your class may be familiar with and print those pictures for discussion. Ask them, *does anyone know what this is? Where do you think it was made?* All of these pictures are inventions that were made in Israel!

WHERE ARE ISRAEL'S INNOVATIONS TODAY (10 MIN)

Students will choose a few inventions described in the previous activity and either research or guess where they are used in the world today. They will then create a map of the world or use the one created in lesson 6 and identify those places.

KIBO ACTIVITY: WORLD SEARCH FOR ISRAEL'S INNOVATIONS (30 MIN)

Students will program KIBO to move from Israel on the map to each place that the innovations are used today.

Example Blocks:

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom and discuss the inventions they chose for the previous activities. Ask students, *what made you choose that invention? Where have you seen or used that invention? Did it surprise you that it was made in Israel? How do you think an idea begins in one country and spreads around the world?*

Lesson 16: Exploring Israel

OVERVIEW

In this lesson, students will make representations of some of the well-known places to visit in Israel and send KIBO on an adventure to explore them.

ACTIVITIES

- Activities to do in Israel (10 minutes)
- Planning KIBO's Trip to Israel (20 minutes)
- KIBO's Vacation to Israel (20 minutes)
- Wrap Up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain activities native to Israel
- Recall places Israel is known for

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Control Structures
- ☐ Representation
- ☐ Design Process
- ☐ Debugging

POWERFUL IDEAS FROM YOM HA'ATZMAUT

- ☐ Israel
- ☐ Celebration

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
- ☐ Spin/Shake Blocks
- ☐ Sing/Beep Blocks
- ☐ Repeat/End Repeat Blocks
- ☐ Number Parameters
- ☐ Light Blocks/Output
- ☐ Distance Sensor
- ☐ Light Sensor

Lesson 16: Activities

ACTIVITIES TO DO IN ISRAEL (10 MIN)

Ask students, *what do you know about places to visit in Israel? Has anyone been to Israel? Where did you go/what did you see?*

Introduce some of the fun things to do in Israel and some of the important cities by playing students the following video. https://www.youtube.com/watch?v=Wxu7X7WjJwo&t=38s

Review the following two vocabulary words.

מְדִינָה	m'dina	state
אֶרֶץ	eretz	land

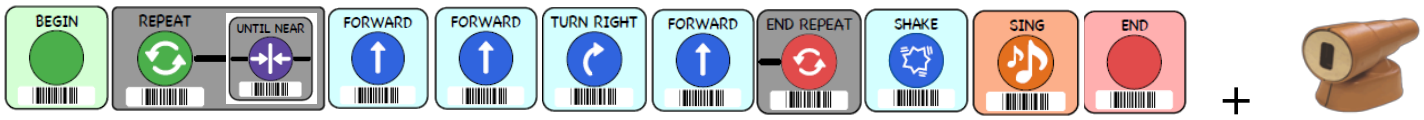
PLANNING KIBO'S TRIP TO ISRAEL (20 MIN)

In Israel, you can go to the beaches, the desert, the Dead Sea, the Western Wall, etc. Think about some of the most well-known places in Israel. Pick a city or place to visit and create representations of it to send KIBO to on a trip to Israel.

KIBO ACTIVITY: KIBO'S VACATION TO ISRAEL (20 MIN)

Students will send KIBO on a trip to Israel by programming KIBO to approach the place of their choosing in the last activity. They will place their representation of the city/place and program KIBO to move toward it and perform some action showing what is done there.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom. Ask students to share their representations of a place in Israel and why they chose it. Then have them take turns showing their program for their classmates to see. Ask students, *why did you choose that place? How did you decide what to program KIBO to do? What would you do the same or differently to represent being in that place if it was you and not KIBO arriving there?*

Theme 5: Celebration

Lesson 17: Hatikvah Recording

OVERVIEW

In this lesson, students will separate into KIBO groups to record pieces of the Hatikvah and program their KIBOs to gather in a meaningful place in Israel.

ACTIVITIES

- Israel's National Anthem (10 minutes)
- Introduction of Sound Recorder Module (15 minutes)
- KIBO Hatikvah Song Session (25 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Recall that a national anthem is an identifying factor of an independent state
- Identify the Hatikvah when they hear it and recognize that it is Israel's national anthem
- Understand the meaning of the Hatikvah.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Modularity

☐ Control Structures

☐ Design Process

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

☐ Celebration

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Repeat/End Repeat Blocks
☐ Number Parameters
☐ Light Blocks/Output
☐ Sing/Beep Blocks
☐ Sound Recorder/Playback Blocks
☐ Distance Sensor
☐ Light Sensor

Lesson 17: Activities

ISRAEL'S NATIONAL ANTHEM (10 MIN)

Introduce students to the national anthem of Israel. Ask students, *does anyone know how to say "national anthem" in Hebrew? Does anyone know what the national anthem of Israel is called? What about what it means?*

הִמְנוֹן	himnon	national anthem
הַתִּקְוָה	Hatikvah	The hope

Teach students to sing the Hatikvah and explain its meaning.

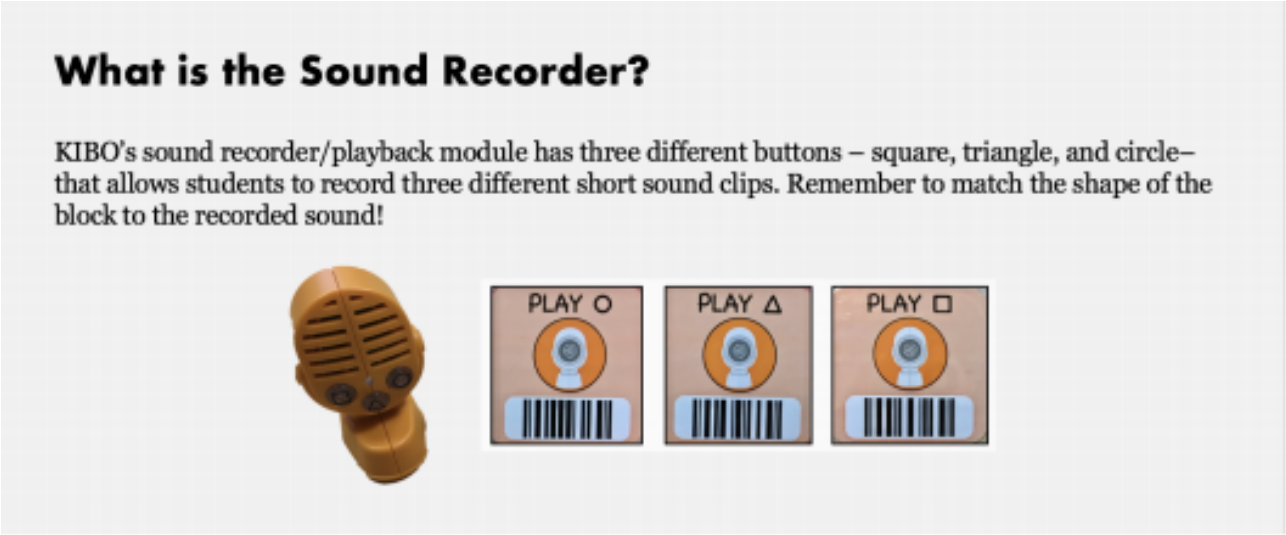
כָּל־עוֹד בַּלֵּבָב פְּנִימָה	Kol od ba-levav p'nima	As long as in the heart
נֶפֶשׁ יְהוּדִי הוֹמִיָּה,	Nefesh y'hudi homiya,	A Jewish soul yearns,
וּלְפַאֲתֵי מִזְרָח קָדִימָה	Ul-fa'atei mizrah kadima	And forward to the eastern edges
עַיִן לְצִיּוֹן צוֹפִיָּה—	A-yin l'tziyon tzofiya—	An eye looks to Zion—
עוֹד לֹא אָבְדָה תִּקְוָתֵנוּ,	Od lo avda tikvatenu,	Our hope is not yet lost,
הַתִּקְוָה בַּת שְׁנוֹת אַלְפַּיִם,	Hatikva bat sh'not al-pa-yim,	The hope of two thousand years,
לִהְיוֹת עַם חָפְשִׁי בְּאַרְצֵנוּ,	Li-yot am hofshi b'ar-tzenu,	To be a free people in our land,
אֶרֶץ צִיּוֹן וִירוּשָׁלָיִם.	Eretz tziyon Vi-ru-shala-yim.	The land of Zion and Jerusalem.

Play the following video beginning at 0:16 seconds to introduce the sound of the Hatikvah.
https://www.youtube.com/watch?v=lMwSlp7I7IQ&feature=youtu.be

INTRODUCTION OF SOUND RECORDER MODULE (15 MIN)

Show students the KIBO Sound Recorder module. Demonstrate with a model program how they can make three different recordings by pressing and holding down on the three shape buttons on the module. Note that the Sound Recorder must be connected to power by inserting the module into the KIBO body before recording.

Lesson 17: Activities

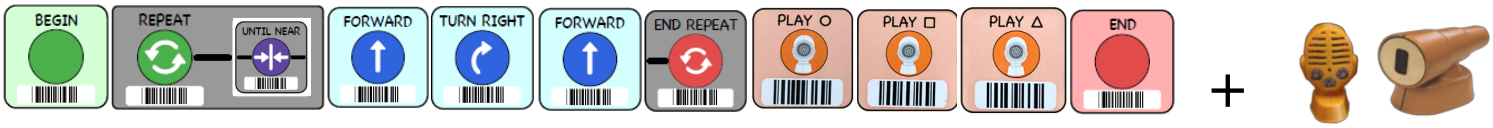


Students will create a craft of a place that is meaningful and symbolizes Israel. This will be a place that they send their KIBOs to sing the Hatikvah together in the next activity. An example might be the Western Wall (Kotel) or an old temple.

KIBO ACTIVITY: KIBO HATIKVAH SONG SESSION (25 MIN)

Students will separate into groups with their KIBOs. They will record themselves singing parts of the Hatikvah using the KIBO recording module. They will program KIBO to approach the previously created craft of a place that is meaningful and symbolizes Israel, and then play their Hatikvah recordings.

Example Blocks:



WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom with their KIBOs and sing the Hatikvah together.

Lesson 18: KIBO Dance Along

OVERVIEW

In this lesson, students will program KIBO to dance with them to Yom Ha'atzmaut songs.

ACTIVITIES

- Yom Ha'atzmaut Songs (20 minutes)
- Yom Ha'atzmaut Dance Party (30 minutes)
- Clean-Up (10 minutes)

STUDENTS WILL BE ABLE TO...

- Identify and understand Israeli songs related to Yom Ha'atzmaut

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Algorithms

☐ Control Structures

☐ Design Process

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Israel

☐ Independence

☐ Celebration

KIBO CONCEPTS

☐ Begin/End Blocks
☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
☐ Spin/Shake Blocks
☐ Repeat/End Repeat Blocks
☐ Number Parameters
☐ Sing/Beep Blocks
☐ Light Blocks/Output
☐ Sound Inputs/Output
☐ Wait for Clap Block
☐ Distance Sensor
☐ Light Sensor
☐ Sound Recorder/Playback Blocks

Lesson 18: Activities

YOM HA'ATZMAUT SONGS (20 MIN)

Introduce students to the following three songs in celebration of Yom Ha'atzmaut. Teach them the translation and play the associated videos for them to learn the tunes.

Im Tirtzu - https://youtu.be/ifxDMPzMemw

אִם תִּרְצוּ אֵין זוֹ אַגָּדָה לִהְיוֹת עַם חָפְשִׁי בְּאַרְצֵנוּ, אֶרֶץ צִיּוֹן וִירוּשָׁלָיִם.	Im tirtzu ein zo aggada Li-yot am hofshi b'ar-tzenu, Eretz tziyon Vi-ru-shala-yim.	If you will it it is no dream To be a free people in our land, The land of Zion and Jerusalem.

Eretz Zavat Halav - https://youtu.be/jjFPzN6oGE8

אֶרֶץ זָבַת חָלָב וּדְבָשׁ!	Eretz zavat halav ud-vash!	It is a land flowing with milk and honey!

ארץ ישראל שלי (My Land of Israel) - Eretz Yisrael Sheli - https://ulpan.com/israeli-music/ארץ-ישראל-שלי-my-land-of-israel/

אֶרֶץ יִשְׂרָאֵל שֶׁלִּי יָפָה וְגַם פּוֹרַחַת מִי בָּנָה וּמִי נָטַע? כֻּלָּנוּ בְּיַחַד! אֲנִי בָּנִיתִי בַּיִת בְּאֶרֶץ יִשְׂרָאֵל אָז יֵשׁ לָנוּ אֶרֶץ וְיֵשׁ לָנוּ בַּיִת בְּאֶרֶץ יִשְׂרָאֵל. אֶרֶץ יִשְׂרָאֵל שֶׁלִּי יָפָה וְגַם פּוֹרַחַת מִי בָּנָה וּמִי נָטַע? כֻּלָּנוּ בְּיַחַד! אֲנִי נָטַעְתִּי עֵץ בְּאֶרֶץ יִשְׂרָאֵל - אָז יֵשׁ לָנוּ אֶרֶץ, וְיֵשׁ לָנוּ בַּיִת, וְיֵשׁ לָנוּ עֵץ בְּאֶרֶץ יִשְׂרָאֵל.	Eretz yisrael sheli yafa v'gam porahat Mi banah umi nata? Kulanu b'yahad! Ani baniti bayit b'eretz yisrael Az yesh lanu eretz V'yesh lanu bayit b'eretz yisrael Eretz yisrael sheli yafa v'gam porahat Mi banah umi nata? Kulanu b'yahad! Ani natati etz b'eretz yisrael - Az yesh lanu eretz, V'yesh lanu bayit, V'yesh lanu etz b'eretz yisrael.	My Land of Israel is beautiful and it blooms Who built and who planted? All us of, together! I built a house in the Land of Israel So we have a land And we have a house in the Land of Israel My Land of Israel is beautiful and it blooms Who built and who planted? All us of, together! I planted a tree in the Land of Israel So we have a land And we have a house And we have a tree in the Land of Israel

KIBO ACTIVITY: YOM HA'ATZMAUT DANCE PARTY (30 MIN)

Teachers will play one or more of the Yom Ha'atzmaut songs and students will dance to them along with their KIBOs (which they will program). In programming KIBO to dance, students need to be conscientious of the sound sensor and make sure to use the "wait for clap block" at least once.

Example Blocks:

CLEAN-UP (10 MIN)

Students will collect their ear sensors and blocks and bring them to a previously determined bin in the classroom. They will then put their KIBOs away.

Lesson 19: KIBO Parade Part 1

OVERVIEW

In this lesson, students will decorate KIBO to represent their favorite part of Yom Ha'atzmaut or Israel and plan their program for the KIBO parade.

ACTIVITIES

- Celebrating Yom Ha'atzmaut (10 minutes)
- Yom Ha'atzmaut KIBO Decorating (30 minutes)
- Wrap-up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain that one way to celebrate Yom Ha'atzmaut in Israel and throughout the world is by having celebratory parades.

POWERFUL IDEAS FROM COMPUTER SCIENCE

☐ Modularity

☐ Design Process

☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

☐ Independence

☐ Israel

☐ Symbols

☐ Celebration

Lesson 19: Activities

CELEBRATING YOM HA'ATZMAUT (10 MIN)

Ask students, *how is Yom Ha'atzmaut celebrated in Israel?* In Israel and around the world, one way to celebrate Yom Ha'atzmaut is by having a celebratory parade. Encourage students to think about their favorite part of Yom Ha'atzmaut or Israel (a key figure, symbol, Israeli place, etc.).

Play the following video of a Yom Ha'atzmaut flag parade in Jerusalem.
https://www.youtube.com/watch?v=t06tPLeZ5PQ

YOM HA'ATZMAUT KIBO DECORATING (30 MIN)

Students will decorate KIBO to represent their favorite part of Yom Ha'atzmaut or Israel and plan their program for the KIBO parade.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central area of the classroom. Ask students, *how did you choose to decorate KIBO? Why did you choose that? What is the significance?*

Lesson 20: KIBO Parade Part 2

OVERVIEW

In this lesson, students will program KIBO to move around school in a Yom Ha'atzmaut Parade to celebrate the independence of Israel.

ACTIVITIES

- Yom Ha'atzmaut Celebration Planning (10 minutes)
- Programming Yom Ha'atzmaut Parade (20 minutes)
- Israel Independence Parade (20 minutes)
- Wrap-Up Discussion (10 minutes)

STUDENTS WILL BE ABLE TO...

- Explain that one way to celebrate Yom Ha'atzmaut in Israel and throughout the world is by having celebratory parades.

POWERFUL IDEAS FROM COMPUTER SCIENCE

- ☐ Algorithms
- ☐ Modularity
- ☐ Control Structures
- ☐ Design Process
- ☐ Representation

POWERFUL IDEAS FROM YOM HA'ATZMAUT

- ☐ Independence
- ☐ Israel
- ☐ Symbols
- ☐ Celebration

KIBO CONCEPTS

- ☐ Begin/End Blocks
- ☐ Movement Blocks (Forward, Backward, Turn Left, Turn Right)
- ☐ Spin/Shake Blocks
- ☐ Light Blocks/Output
- ☐ Repeat/End Repeat Blocks
- ☐ Number Parameters
- ☐ Sing/Beep Blocks
- ☐ Distance Sensor
- ☐ Light Sensor
- ☐ Sound Recorder/Playback Blocks

Lesson 20: Activities

YOM HA'ATZMAUT CELEBRATION PLANNING (10 MIN)

Students will review their plan for a KIBO program they created in lesson 19. They will use this time to make any changes or adjustments to the program and the KIBO decorations.

Play the following video of a Yom Ha'atzmaut celebration.
https://www.youtube.com/watch?v=HsE1cAKM4Yc

KIBO ACTIVITY: PROGRAMMING YOM HA'ATZMAUT PARADE (20 MIN)

Students will program KIBO to move around the school in a Yom Ha'atzmaut Parade to celebrate the independence of Israel. Encourage students to use all the new sensors and blocks learned in this curriculum, including the sound recorder, sound recorder blocks, sound sensor, wait for clap block, repeat/end repeat blocks, number parameters, and distance and light sensors.

ISRAEL INDEPENDENCE PARADE (20 MIN)

Students will gather for a parade around the school with their programmed KIBOs in celebration of Yom Ha'atzmaut.

WRAP-UP DISCUSSION (10 MIN)

Students will gather in a central space within the classroom with their decorated KIBOs. Ask students, *how did you choose to program your KIBO? What would you do differently or the same if you did the parade again?*

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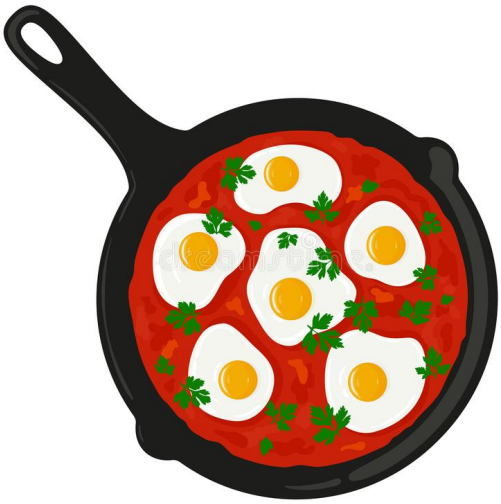
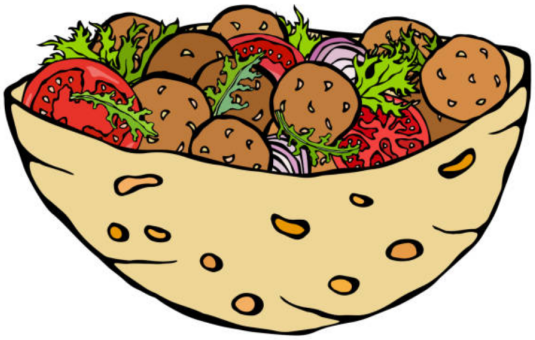
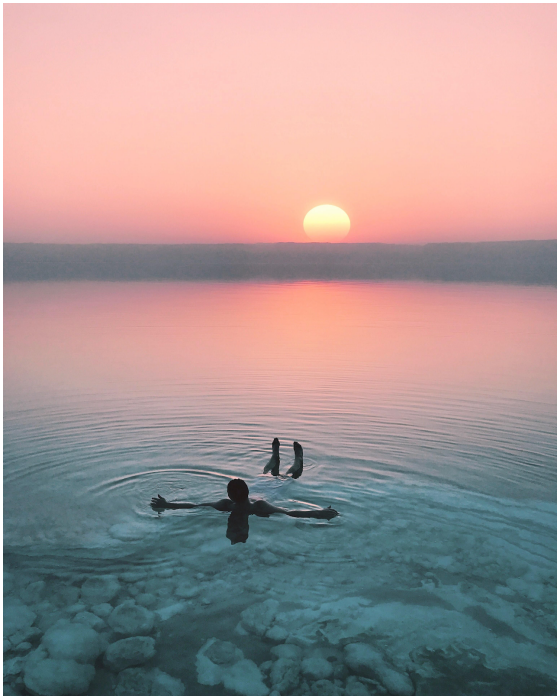
Appendix A

IMAGES SIGNIFICANT TO ISRAEL

Shakshuka	
Pita with Falafel	

Shekel (Israeli Currency)	
Israeli Defense Force (IDF)	
Israeli Flag	

Jerusalem	
Dead Sea	

Appendix B

HEBREW VOCABULARY MATCHING GAME

I. Cut out each Hebrew word and each English translation associated with it
II. Separate the class into small groups
III. Lay the names and descriptions on the floor or a table in front of each group of student
IV. Mix the cards so it is not clear which name matches which description
V. Each team must place the name next to the proper description
VI. The team that connects all the words with the correct description first, wins!
VII. For an **extension**, use the Hebrew spelling of the names

חֲלוּצִים	halutzim	pioneers
עַצְמָאוּת	atzma'ut	independence
מְדִינָה	m'dina	state
אֶרֶץ	eretz	land
כֶּסֶף	kesef	money
שָׂפָה	safa	language
דֶּגֶל	degel	flag
מֶמְשָׁלָה	memshala	government
הִמְנוֹן	himnon	national anthem
בּוּלִים	bulim	stamps
צָבָא	tzava	Army