



Total time

45-60 mins

Age range

9-14 years

Food Innovations: Investigations in Science



Subject

Geography, Citizenship, Social Studies, Science, Mathematics

Learning Outcome

- To understand the framework of the Global Goals for Sustainable Development
- To consider the impact daily consumer choices (i.e. the food on your plate) have on the Global Goals
- To consider innovations in food system practice from a science curriculum perspective
- To stimulate students to make observations, raise questions and develop opinions about the feasibility of urban farming, through a scientific inquiry and writing exercises

Materials

- Plain paper and poster boards
- Appendix A
- Writing and drawing materials
- Equipment for displaying or projecting the video from <http://www.phillyurbancreators.org>

Lesson Preparation

- Video and audio equipment will be needed for a video presentation
- Download the video from the Philly Urban Creators' website : "This Urban Farm is Transforming Lives"

Note: This lesson is preferably part of an extension to the "Every Plate Tells A Story" lesson plan, which includes taking part in the Food Project and identifying a pledge for change.

Teachers can also share the World's Largest Lesson Part 2 animated video (<https://vimeo.com/178464378>) which features Philly Urban Creators.

Teacher Notes

To increase understanding of the Global Goals, educators can make connections between students' real-world behaviours when it comes to family food purchases and preparations, and Goal 3 (Good Health and Well-being) and Goal 11 (Sustainable Cities and Communities). The Urban Creators members who are featured in the video are innovative urban farmers; they took it upon themselves to improve the health of their local community members while addressing issues of poverty, food insecurity, and neighbourhood revitalization. By introducing young people to the practices of "farm-to-table" and the farmers themselves, educators go beyond simple exposure to student analysis and later to defence of societal practices.

Key Vocabulary

- Sustainability
- Development
- Goal
- Climate
- Consumption
- Carbon Footprint
- Innovation
- Distribution
- Hydroponics
- Campaign

Step 1: Review Global Goals 3 and 11

5
mins

To introduce this exploration activity, review Goal 3, Good Health and Well-Being, and Goal 11, Sustainable Cities and Communities from the 17 Sustainable Development Goals and ask students to bring to mind the food selections displayed by their representative meals. If necessary please visit materials for Goals 3 and 11 at <http://worldslargestlesson.globalgoals.org>

Step 2: Focus on One Goal

5
mins

Ask students to consider how their food selections could have been acquired from local farms or neighbourhood garden cooperatives. Would this be possible where they live?

Step 3: Learning Activity with Video

5
mins

Watch

Students will explore the impact of urban farming by watching a short video from Philly Urban Creators. Play the "This Urban Farm is Transforming Lives" film (4 min) .



HUFFINGTON POST

coverage of Urban Creators

at Life Do Grow farm !

<https://www.youtube.com/watch?v=ZHmChfUwWmU>

Analyse

Explain that the video is from an interview by a journalist from the Huffington Post reporting about this urban farm established to feed the local community (the land was originally a garbage dump!). Instruct the students to note on paper any ideas shared during the video that relate to the topic of food innovation and the key vocabulary noted above.

Differentiations and Alternatives

If you can't play the video or don't have the equipment necessary, download and/or print p.3 of handout named "Urban Creators" at this link:

<http://cdn.worldslargestlesson.globalgoals.org/2016/08/Changemakers-Take-Action2.pdf>

Then read the handout with the students.

Step 4: Review and Discuss Video

10
mins

Next, review the video and/or handout, and direct the students in discussion. Ask them to consider any particularly innovative food practices by the Urban Creators:

How did these practices positively impact on the local community in Philadelphia?

How did this in turn positively impact on the Global Goals?

Within the discussion, note to the students how the Urban Creators members that were featured in the video are innovative urban farmers. They took it upon themselves to improve the health of their local community members while addressing issues of poverty, food insecurity, and neighbourhood revitalization.

Discussion Extension Activity

Stimulate Dialogue

Encourage and extend the dialogue by offering new viewpoints or related topics. As an extended activity, utilize one or all the following question prompts on a separate paper handout activity or Socratic Seminar exercise.

(In a Socratic Seminar activity, students help one another understand the ideas, issues, and values reflected in a text/video through a group discussion format.)

- What are the problems urban communities face when it comes to grocery shopping?
- How could we here in our community feed ourselves if we did not have access to grocery stores or a market?
- What are your concerns regarding the carbon footprint associated with food sourced from faraway places?
- How can we, as a class, increase consumption of locally produced food and agricultural products?
- What is one new method/adaption of food purchasing and preparation that we could attempt in the next couple days that would support the Goals?
- Which stakeholders in the local community should be tasked with alternative food systems?
- Which is more important, human comfort and ease of food access, or the negative impact of food systems upon land, water, air and other living things?
- What do you personally prefer to eat, fast food or healthy food? Provide detailed explanation.

Critical Thinking

Ask students to think critically about the Urban Creators case study presented and concepts already learned in Science classes, and apply them to their everyday lives, specifically their consumption choices, or food on their plate. In written form, students should make observations, raise questions and develop opinions about the feasibility of urban farming in their own local community.

Group Work

Divide students into teams of two or three people. Teams should work together to determine if development of such urban farms in their own communities would have the same benefits, and then create (digital or paper) campaign posters to teach their recommendations for or against changed behaviours or developments, and their impact upon Goals 3, 11 and other Goals.

Remind them to use evidence and supporting details from the video/handout.

Present Results

Display completed posters in the classroom, and invite family members or school faculty members to give feedback to the students' written opinions and findings.

Photographed images of the students' posters may also be collected and later posted on a collaborative virtual corkboard, such as Padlet, in order to spread the students' campaign voices, as well as to share their learning with other classrooms.

Step 5: Create an Impact Chain

10
mins

Either individually or in small groups ask students to create an impact chain tracing the contents of their discussion. Start with the Urban Creators' actions and note in a chain the impact they have created firstly in their local community across various different areas and then ultimately to their impact on the Global Goals. Encourage the inclusion of the impact that raising awareness for their actions has on others in similar urban settings or in other countries, and on more than one Global Goal.

Step 6: Imagine an Impact Chain

10
mins

Using this approach ask students to then work in small groups to imagine a new impact chain that starts with an action they could take in their school or local community to address either Goal 3, Good Health and Well-Being or Goal 11, Sustainable Cities and Communities.

Sharing Activity

Share your learnings and ideas on social media and let your students formulate a pledge using the following Hashtags:

#WorldsLargestLesson

#TeachSDGs

Tag the World's Largest Lesson



@TheWorldsLargestLesson



@TheWorldsLesson



@theworldslesson

FLIPGRID.

- Invite students to share their thoughts and ideas with the team at Philly Urban Creators at <https://flipgrid.com/globalvoice>
- Add your activity and writing to a global map of learning about the Global Goals: <http://worldslargestlesson.globalgoals.org/map>

Further Lesson Extension Ideas and Activities

Teachers are strongly encouraged to invite experts, such as local farmers, to share with the students via video conference in order to clearly illustrate food distribution systems. Depending upon technology support, students can experience an immersive Virtual Reality (VR) field trip for a clearer look at food facilities, agriculture methods, and even materials.

Virtual Reality Field Trip

Canadian Farm



<http://www.realdirtblog.ca/360-virtual-reality-farm-tours-theyre-udderly-amazing/>

Dairy Farm in Sweden



<http://www.delavalcorporate.com/news-media/news/hamra-farm-now-available-in-virtual-reality/>

If possible, schedule a field trip with students to local farms, distribution centres, and/or markets which would provide great learning opportunities.

Students can be actively emboldened to investigate food systems at local farms. Students may formulate a plan to grow food plants that would be used in local cooking practices, for example, in the school cafeteria or at home.

Exploring Sustainable Student Gardens

By performing a feasibility study of hydroponics, students could evaluate whether a new way of doing things could benefit local stakeholders.

Next, they could take a virtual tour of another school community who has already begun a similar process. Here is a link to resources for creating and sustaining a student garden program:

<https://www.kidsgardening.org/create-sustain-a-program/>

Here is an article about a school that has undertaken eco-friendly practices:

<http://jacksonville.com/news/metro/2012-08-20/story/new-st-johns-school-focuses-high-tech-eco-friendly> and another related link <http://www.farmtoschooltable.com/>

Creating A Sustainable Food Menu

Encourage students to create a sustainable food menu. Students should consider the social impact of the food's journey "to the plate." Specifically, students should think about and/or investigate natural resources conservation, food waste prevention, greenhouse gas emission reductions, and the carbon and water footprint.

Campaigning

Students can design an "Eat Local" campaign at their school. Ask students to evaluate "farm-to-table" practices, and specifically take a closer look at local produce "origins." By investigating and making a list of five foods that were produced locally and which are now sold in the grocery store, learning activities can yield understanding in order to later provoke new innovation.

Supporting Resources

Stories of Hydroponics Innovations from the World Food Programme
<http://innovation.wfp.org/>

The Story of the Impossible Burger <https://www.impossiblefoods.com/>

USDA Economic Research Service <https://www.ers.usda.gov/topics/food-choices-health/food-access/>

Recycling Efforts and more lesson plans at Education World
<http://www.educationworld.com/our-hungry-planet>

Hippoworks Climate Videos for younger children (World's Largest Lesson & UNICEF)
<https://vimeo.com/album/4040236>

Eat Green: Our Everyday Food Choices Affect Global Warming & the Environment (NRDC)
https://www.nrdc.org/sites/default/files/eatgreenfs_feb2010.pdf

Climate Protection Partnership <https://www.myclimate.org/education/>

Understanding Climate: Smart Agriculture (FAO)
<https://www.youtube.com/watch?v=IUdNMsvDIZ0&feature=youtu.be>

Food Systems Tools (Nourish, Worldlink) <http://www.nourishlife.org/teach/food-system-tools/>

About the authors

This lesson has been produced as a collaboration between the World's Largest Lesson and the [#TeachSDGs](#) Task Force.

With specific thanks to Fran Siracusa and Dr Jennifer Williams, Calliope Global and #TeachSDGs Task Force.



THE GLOBAL GOALS

For Sustainable Development



