

JFK SPACE LAB

EXPLORERS REACHING FOR THE STARS

JFK SPACE LABS EXPLORER PROGRAM PRESENTED BY RAYTHEON

FREE PROGRAMS TO CONNECT STUDENTS
WITH THE INTERNATIONAL SPACE STATION

During the 50th anniversary year of the Apollo 11 moon landing, the John F. Kennedy Library Foundation, in partnership with Raytheon and the International Space Station (ISS) U.S. National Lab, offers schools and after-school programs (such as Boys & Girls Clubs) free activity guides and program resources to connect students with ISS. This program honors the inspirational heritage of JFK and the innovative technology that made America's Apollo program happen, and rekindles the power of space exploration to inspire and engage students.

All participating programs receive an ISS STEM kit and access to several no-cost programs and resources. For more information please contact jfkspacelabsinfo@jfkfoundation.org.



THIS PROGRAM HONORS THE INSPIRATIONAL HERITAGE OF PRESIDENT KENNEDY AND THE INNOVATIVE TECHNOLOGY THAT MADE AMERICA'S APOLLO PROGRAM POSSIBLE, AND REKINDLES THE POWER OF SPACE EXPLORATION TO INSPIRE AND ENGAGE STUDENTS.

JOHN F. KENNEDY
LIBRARY FOUNDATION

RAYTHEON CELEBRATES
APOLLO
50
YEARS

ISS
U.S. NATIONAL LABORATORY



Raytheon

JFK SPACE LAB

EXPLORER CATALOG



SPACE STATION EXPLORERS — GATEWAY TO ALL THINGS ISS EDUCATION

Brought to you by ISS National Lab

SPACE STATION EXPLORERS WEB

Space Station Explorers is the official website for ISS National Lab education. Visit to explore all partner programs, news updates and education resources.



GRADES: K–8

SUBJECTS: Many STEM domains

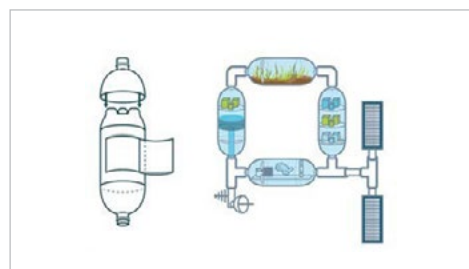
PACKAGE: Website,
learning activities

TIME: A few minutes to many hours

LINK: spacestationexplorers.org

ISS STEM EDUCATION GUIDE

These six hands-on activities, using easily accessible materials, introduce core concepts about ISS. A great entry point for students and educators.



GRADES: 3–8

SUBJECTS: Many STEM domains

PACKAGE: Activity guide

TIME: Each activity is 1–5 hours

LINK: [ISS STEM kit](#)

EDUCATOR AMBASSADORS

Educators join this community to help spread the word about ISS education. It includes news updates, resources and special opportunities.



GRADES: K–2

SUBJECTS: Multiple STEM domains

PACKAGE: Membership,
free resources

TIME: A few minutes to many hours

LINK: [space station ambassadors](#)

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ARISS — AMATEUR RADIO ON THE ISS

Brought to you by ARISS

TALK WITH ASTRONAUTS

Working with local ham radio operators, student ask questions of astronauts when ISS flies over. Limited opportunities: Schools apply for limited slots.



GRADES: 3–12

SUBJECTS: Tech, space science

PACKAGE: Online guide

TIME: 6 weeks to 6 months

LINK: [ariss school contact](#)

NASA STEM ON STATION — EXPLORE ISS USING NASA WEB RESOURCES

Brought to you by NASA

STEM ON STATION

Link directly to NASA education programs and activities supporting ISS outreach. This provides learning guides, resources and news.



GRADES: K–12

SUBJECTS: Many STEM domains

PACKAGE: Website,
learning activities

TIME: A few minutes to many hours

LINK: [nasa stem on station](#)

ISS NEWS UPDATES

Get the latest news on ISS activities, launches, spacewalks, experiments and so much more.



GRADES: K–12

SUBJECTS: Many STEM domains

PACKAGE: Website,
learning activities

TIME: A few minutes to many hours

LINK: [nasa iss news](#)

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GENES IN SPACE —YOUR DNA EXPERIMENT ON THE ISS

Brought to you by miniPCR and Boeing

GENES IN SPACE COMPETITION

Students design DNA experiments that address challenges in space exploration and explore data from previous experiments. The winning experiment will be conducted on ISS.



GRADES: 7–12

SUBJECTS: Biology

PACKAGE: Application,
interactive resources,
loaner equipment

TIME: 10–20 hours

LINK: genesinspace.org

STORY TIME FROM SPACE — ASTRONAUTS ON ISS READ STEM BOOKS

Brought to you by T2 Science and Math Consultants

STORY TIME FROM SPACE

Astronauts read aloud STEM books for kids. *Rosie Revere Engineer* is just one example of more than a dozen, all available to watch online.



GRADES: K–8

SUBJECTS: STEM

PACKAGE: Videos,
learning activities

TIME: Typically 30 minutes/book

LINK: [story time from space](http://storytimefromspace.org)

SCIENCE TIME FROM SPACE

Astronauts demonstrate surprising science concepts that complement the content in Story Time From Space books.



GRADES: K–8

SUBJECTS: STEM

PACKAGE: Videos,
learning activities

TIME: Typically 30 minutes/demo

LINK: [science time from space](http://sciencetimefromspace.org)

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EXPLORER CATALOG



WINDOWS ON EARTH — ASTRONAUT PHOTOS OF AMAZING PLANET EARTH

Brought to you by ISS National Lab

WINDOWS ON EARTH

Astronauts take hundreds of Earth photos every day. Explore our home planet using this rich archive of compelling images.



GRADES: 3–12

SUBJECTS: Earth science

PACKAGE: Website,
educator's guide

TIME: A few minutes to many hours

LINK: windowsonearth.org

MYSTERY IMAGES

How well do you know Earth? Each photo is a mystery. What Earth science does it show? Where is it? What questions does it spark?



GRADES: 3–12

SUBJECTS: : Earth science

PACKAGE: Website,
educator's guide

TIME: Each activity is 1–5 hours

LINK: winearth.mystery.images

FLY-OVER MOVIES

Hi-res fly-over movies reveal the beauty and variety of Earth, as if in the ISS cupola enjoying Earth below. Night movies are especially intriguing.



GRADES: 3–12

SUBJECTS: : Earth science

PACKAGE: Online videos

TIME: A few minutes to many hours

LINK: winearth.hires.movies

JFK SPACE LAB

EXPLORER CATALOG



TOMATOSPHERE — PLANT TOMATO SEEDS THAT HAVE FLOWN IN SPACE

Brought to you by ARISS

TALK WITH ASTRONAUTS

Compare germination rates of two packets of seeds. One packet has flown on ISS, the other has not.



GRADES: K–8

SUBJECTS: Biology

PACKAGE: Tomato seeds,
activity guide

TIME: 10–20 hours

LINK: [tomatosphere](https://tomatosphere.org)

ZERO ROBOTICS — WRITE CODE TO CONTROL ROBOTS ON THE ISS

Brought to you by Massachusetts Institute of Technology

ZERO ROBOTICS HIGH SCHOOL

Write code to control mini-robots on the ISS. Annual competition begins with a simulator and then winning entries uplinked to ISS. Teams invited to MIT to participate in the live broadcast.



GRADES: 9–12

SUBJECTS: Robots, programming

PACKAGE: Online simulator,
education guide

TIME: 10–20 hours

LINK: [zero robotics – high school](https://zero-robotics.org/high-school)

ZERO ROBOTICS MIDDLE SCHOOL

This is the same as the high school program, except with simpler code, and run as a summer program. Winning entries are uplinked to ISS. This is a four-week summer program.



GRADES: K–12

SUBJECTS: Robots, programming

PACKAGE: Online simulator,
education guide

TIME: 10–20 hours (summer)

LINK: [zero robotics –middle school](https://zero-robotics.org/middle-school)

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GROWING BEYOND EARTH — TEST SEEDS FOR POSSIBLE USE ON ISS

Brought to you by Fairchild Tropical Botanic Garden

VEGGIE

Monitor plant experiments in the Vegetable Production System (Veggie) on ISS (operated by NASA). Scientists explain findings with engaging videos.



GRADES: 6–12

SUBJECTS: Biology

PACKAGE: On-site workshop materials

TIME: A few minutes to many hours

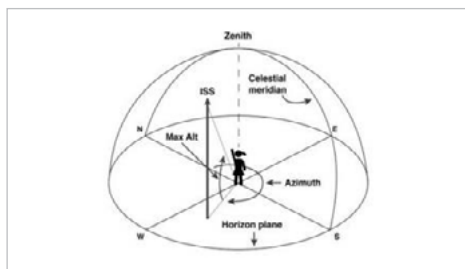
LINK: [NASA veggie space garden](https://www.nasa.gov/mission/science-research/experiments/veggie/)

ISS ABOVE — MONITOR ISS LOCATION AND LIVE VIDEO OF EARTH

Brought to you by Image BEAM

ISS ABOVE ACTIVITY GUIDE

Learning activities highlight ISS, orbital path, Earth views and related topics. It helps to have the ISS Above device, but it's not required.



GRADES: 3–12

SUBJECTS: Earth and space science

PACKAGE: Activity guide

TIME: A few minutes to many hours

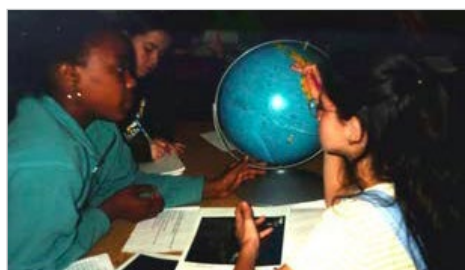
LINK: [ISS above curriculum](https://www.imagebeam.org/iss-above/)

SALLY RIDE EARTHKAM — SELECT TARGETS FOR A CAMERA ON THE ISS

Brought to you by US Space and Rocket Center

EARTHKAM

Students use a digital camera on ISS to photograph Earth. They select targets based on ISS orbital path, then use images to explore Earth science.



GRADES: 5–9

SUBJECTS: Earth science

PACKAGE: Website, educator's guide

TIME: 10 hours

LINK: earthkam.org

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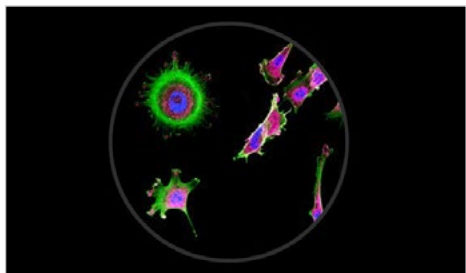


ORION'S QUEST —ANALYZE DATA FROM ISS EXPERIMENTS

Brought to you by IO Orion's Quest

CANCER CURE RESEARCH

Students help ISS scientists analyze data on space grown cells for a new cancer treatment.



GRADES: 5–12

SUBJECTS: Biology

PACKAGE: Activity guide

TIME: 10 hours

LINK: orionsquest.org/cure

SPIDERS IN SPACE

Students help scientists investigate spider web-spinning and fruit fly behavior and compare them between the ISS and Earth.



GRADES: 5–10

SUBJECTS: Biology

PACKAGE: Activity guide

TIME: 10 hours

LINK: orionsquest.org/a_spiders

AND SO MANY MORE!

Other topics include stem cells, managing microbes, butterflies, worms and silicate gardens.



GRADES: 5–12

SUBJECTS: Biology, chemistry

PACKAGE: Activity guide

TIME: 10 hours

LINK: orionsquest.org/missions



SCIGIRLS IN SPACE — INSPIRING VIDEOS HIGHLIGHT GIRLS DOING ISS EXPERIMENTS

Brought to you by Twin Cities Public Broadcasting

SCIGIRLS IN SPACE VIDEOS

These videos feature middle and high school girls who designed, built and launched experiments to ISS.



GRADES: 5–12

SUBJECTS: Role models, STEM

PACKAGE: Videos, Related activities

TIME: 5 minutes to several hours

LINK: [scigirls in space](#)