

After School STEM Academy

Host Orientation
Spring 2022

To begin we acknowledge that we are on the homeland of the Coast Salish people, and it is with gratitude that we recognize the tribes of this area and that it is their land we are on.



THANK YOU for
participating!

Our Mission

Washington Alliance for Better Schools is a collaborative of school districts and industry leaders that leverages resources, talent, and intellectual capital to help a quarter million students graduate career and college ready.



Equity, Diversity & Inclusion - *Our lens*

WABS is committed to addressing the systemic racism that creates disparities in education. We are committed to equity, diversity and inclusion, which requires that we use our collective voice to identify and eliminate institutional barriers that deny equitable access and impact the success of Black, Indigenous, and people of color (BIPOC), and other underserved students.

What is ASSA?

A 4-week, hands-on program for elementary aged kids, designed to spark interest in STEM learning and careers.

Students

- Engage in real-world problem-solving using the Engineering Design Process
- Build 21st Century skills.

Program Goals

- Provide high-quality, no-cost, career connected learning opportunities which prepare students to succeed in the global economy
- Build students' 21st Century skills (communication, collaboration, critical thinking, and creativity) by working directly with industry and community partnerships for all students, particularly those impacted by systemic racism and those furthest from educational justice

Roles

Industry Volunteers:

Primary Facilitators

- Facilitate the hands-on activity
- Share connection to personal job experience
- Support student learning

School Hosts:

Session Manager

- Arrange classroom
- Support volunteers with activities as needed
- Help address behavior or technical issues if they arise

Logistics

- Spring session dates: 05/09-06/17
- 4 weeks
- 1.5 hour meetings
- 24 students per session
- Elementary
- *Note: In-person sessions may transfer to Hybrid if volunteer availability or school circumstances change.*

Curriculum

Liftoff: Rockets & Rovers

In this unit, students will launch rockets to moons and planets, and create rovers to explore the destination. Students will use teamwork and cross team collaboration to redevelop new models using the engineering concepts of criteria and constraints.

Students will use a stomp launcher for testing. A large, open space, possibly outdoors, will be preferred.

Supply Kits

- **Volunteers will bring the kit with them to the 1st session**
- If you do not have a volunteer assigned to your session, the supply kit will be delivered to your school before your 1st session

Getting Started

Host Responsibilities

- **Recruit Students, 10 minimum**
- Review Facilitator Guide & Adventure Slides online
- Determine how you will share slides during the session
- Connect with your volunteer facilitators
 - Ensure background check is completed
- Send student AND volunteer reminder

Connect With Volunteer Facilitator

- Provide details for completing the background check
- Confirm Schedule
 - Discuss scheduling changes or conflicts
 - Arrange to have at least one volunteer per session.

Volunteer Responsibilities

- Attend 1 hour, online training
- Connect with school host
- ***Provide school with proof of full COVID vaccination & complete background check as instructed by the school***
- Follow district policies regarding COVID precautions
- **Facilitate all sessions**
- Get to know the students, connect & *have fun*

Supporting Your Volunteers

- Students benefit when activities are led by industry volunteers
 - Volunteers come with different levels of knowledge and comfort of working with kids, particularly virtually
 - The volunteers should focus on facilitation and sharing their STEM experiences
- Teachers serve as a supportive resource and guide for volunteers

STEM Learning

Habits of Mind: SEL in STEM

Feel

Collaborate effectively See themselves as problem solvers

Persist and learn from failure Weigh implications of solutions

Think

Apply math knowledge to problem solving Envision multiple solutions

Apply science knowledge to problem solving Make evidence-based decisions

Consider problems in context Use abstraction to create efficient solutions

Consider trade-offs between criteria & constraints Use systems thinking

Do

Communicate effectively Innovate processes, methods, & designs

Construct models & simulations Investigate features and uses of tools

Decompose problems Investigate properties and uses of materials

Use computers to solve problems

Engaging Students in *Habits of Mind*

- **The Habits of Mind chart serves as a tool for discussion questions, encouragement, and extension activities.**
- *For example,*
 - *the Habit “Persist and learn from failure” might inspire the discussion question “What strategies did you use when your design wasn’t working?”*
 - *the encouraging comment that “I admire how you all are learning from the results of your first design.”*
 - *the exercise of listing ways in which designs failed and using that information to plan improvements.*

SEL in STEM Impact

Academic

Learning to make reasoned judgement after analyzing information, data, facts

Recognizing how critical thinking skills are useful

Workplace

Using planning and organizational skills

Practicing teamwork & collaborative problem-solving

Social

Identifying one's emotions

Examining prejudices and biases

Taking others' perspectives

Health & Wellness

Resisting negative social pressure

Anticipating & evaluating the consequences of one's actions

Civic

Understanding the influences of organizations/systems on behavior

Identifying diverse social norms, including unjust ones

5 CASEL Competencies & 21st Century Skills



What Should Volunteers Share?

We encourage volunteers to share their personal story. It helps students relate their interests and picture their own path. Suggested prompt questions:

- *What do you do?*
- *How did you get there? What degree or certification do you have?*
- *What do you like about your job? Do you have time off?*
- *What is the most innovative thing you have gotten to do in your career?*

STEM Learning Summary

- Adults guide, instead of giving answers
- Encourage learners to try their own ideas to questions.
(Even if you know it won't work!)
- Remind everyone that STEM activities are more about the **process** than the results
- There is no right answer! Chances are, there are several ways to reach a solution
- Have fun!

Resources

- Curriculum
- PowerPoint Presentations
- Student Recruitment Flyer

Files are located at www.wabsalliance.org

Engaged Students

↳ After School STEM Academy

↳ Teachers

↳ Link under *Spring Curriculum Resources (password in email)*



21st Century Community
Learning Centers

After School STEM
Academy

After School STEM Academy

Volunteers

Teachers

Curriculum Review: Week 1

- ***Rocket Power! What is Engineering?***
- Activity Overview: Icebreaker/ Path & Career Sharing/Build a rocket to support a rover
- Prep time: 25 Min, Create mini-kits of cups, paper, and tape
- Slides: 1 video
- Reusables: None

Curriculum Review: Week 2

- ***Boost Your Knowledge Out of This World!***
- Activity Overview: Test variables of weight, angle, and material with stomp launchers
- Prep time: 20-40 Min, mostly arranging materials/ creating altitude trackers, *if using*
- Slides: 2 audio files
- Reusables: Altitude Trackers, Launchers, Dowels, Washers/ Keep the Results Chart

Curriculum Review: Week 3

- ***Boost Your Knowledge Out of This World!***
- Activity Overview: Creating rovers, working within criteria and constraints
- Prep time: 15-20 Min, create a rover model, prep motor wires
- Slides: 1 audio, 2 videos, rover graphics
- Reusables: none

Curriculum Review: Week 4

- ***Countdown to Blast Off!***
- Activity Overview: Work together to engineer a rocket that can get our rover and all of its tools to the location.
- Prep time: 10 Min, recreate the Results Chart from Activity 2
- Slides: 1 audio, 2 videos

Questions?

Thank you!

If you need support, please contact us!

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