SCHOOL GROUP GUIDE

For Teachers, Chaperones, and Students
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Planning Your Visit

Welcome

The Lemelson Center for the Study of Invention and Innovation welcomes you and your school group to Spark!Lab, a place where visitors get the opportunity to Explore, Create, Innovate, Collaborate, and Problem-solve!

Before You Arrive

Please be advised that due to space restrictions, we may not be able to accommodate your whole group at one time. If your class is larger than 10 students, consider splitting into smaller groups beforehand to visit other areas of the museum with proper chaperone supervision. One adult chaperone is required for every 10 students; however, we recommend one adult for every 5 children to make for more enriching group interaction at each activity.

Upon Arrival

A facilitator will greet your group and assess how many students and chaperones can be admitted at that time. If we can accommodate your whole group at once, the greeter will orient you to Spark!Lab and provide a brief overview of what you can do during your visit. Facilitators will be on hand to assist, engage, and experiment with your group, but the responsibility of supervising the students remains with you and the chaperones.
In Spark!Lab

Spark!Lab activities are designed around common themes, which connect with collections and exhibitions at the National Museum of American History. Themes and activities change on a regular basis, so check our website for current Spark!Lab activities.

Activity Stations

- Your group can start anywhere!
- The purple signs at each station provide a prompt and historical information to help your group understand the task at hand.
- The materials to invent a solution to the challenge are provided.
- Ask a facilitator in a yellow apron if you have questions about how to get started or need assistance.

Invention Hub

- Otherwise known as the “make and take” station, these central tables offer students various materials to create their very own prototype based around the theme.
- Students are invited to take their inventions with them or leave them on display in Spark!Lab.
- Supplies and equipment other than the students’ inventions must remain in Spark!Lab.

The Thinking Spot

- Students can sketch their own inventions, read a book from our invention library, and explore new ideas here!
- This is a great space for students who might want time to themselves.

Share Your Experience

While in Spark!Lab, share your experience with us on social media! Take a picture or video of your invention and use #SparkLab.

Depending on how busy Spark!Lab is, The Hub may be replaced with The Thinking Spot during your visit. Please check out The Hub Challenge at School at the end of this guide to help with follow-up in the classroom.
Teachers-Chaperones

Engage With Your Group

- Active listening and participation is essential to your students’ understanding of the invention process.
- Ask questions to foster collaborative learning.
- When frustrations arise, encourage your group to try again!

Here are some questions that will help engage your students:

**Activity stations**
- Now that we know the challenge, what will you need to invent to solve this problem?
- Why do you think this happened?
- What would happen if…?
- How could you improve your design?
- How can your invention be put to use?
- Ask questions about something you observe.

**Invention Hub**
- What materials will you need to build your invention?
- What do you think is the best feature of your invention?
- How could you improve your invention when you get home?
- Ask questions about something you observe.

**Checklist**
- Prepare and assign chaperones to small groups ahead of visit.
- Communicate behavior expectations and consequences to students and chaperones.
- Continue to monitor and guide students while in Spark!Lab.
- Ensure all students and belongings are accounted for upon leaving.

**Students**

- Be innovative thinkers!
- Respect other visitors and work together (collaborate).
- Be considerate and clean up your station before leaving.
- Leave your food and drinks outside of Spark!Lab.
- Work through the invention process—Think It, Explore It, Sketch It, Create It, Try It, Tweak It, Sell It!
Request for Feedback

You may be asked upon leaving if we can follow-up with your class through a quick survey via email, or you can feel free to email us with your comments at SparkLab@si.edu. Your feedback is appreciated as we are always working to improve the Spark!Lab experience!

The Ride Home

We encourage you to open up a dialogue with your students about their Spark!Lab experience on the ride home and ask how they took part in the invention process. What did they learn about being an inventor that they did not know before? What were some challenges they faced and how did they solve them?

Take The Hub Challenge (below), or share the Inventor’s Notebook with your students. Use these in the classroom or provide them as take-homes so students can continue to explore the invention process!

Resource for Teachers

See how objects at the National Museum of American History are used to describe the real-world application of the invention process with the Smithsonian Learning Lab’s Process of Invention Collection.

You may also want to check out the book resource list we have put together.
The Hub Challenge

Invention can happen anywhere! Take this activity back to your classroom or share with students so they can continue to invent at home!

The Big Idea
Starting with a general prompt to identify a problem or a goal, students can explore the invention process anywhere and create prototypes from household items.

Sample Prompts from Spark!Lab
- Make a thing that rolls
- Re-invent the skateboard / car / wheelchair / shopping cart, etc.
- Make a thing that makes sound

Ask students to think about the following questions: What do you want your invention to do (what is your goal)? How will it be different from existing inventions? What materials will work best to achieve your goals? After you test it, what works and what doesn’t work? What would you change about your invention?

Sample Supplies and Materials
- Milk straws or standard drinking straws
- Cardboard
- A mix of recycled materials
- Duct or Masking tape
- Pipe cleaners
- Scissors
- Twisty ties
- Beads
- Circle template
- Popsicle sticks
- Bottle caps
- Crayons, markers, colored pencil
Outcomes
By participating in this activity, students will:
1) Engage in the invention process through a hands-on activity
2) Solve a problem by designing and building a prototype
3) Use materials creatively and resourcefully, adapting to supply limitations and restrictions
4) Test a prototype and identify Tweaks for improvement or better outcome