



MPACT

Math and Computational Thinking Through 3D Making

MPACT Community Event

Logistics

Planning calendar

Early planning

- Can you join in with other school/district events? Does it make sense to do this event during science fair?
- Set a date.
- What other school staff can you recruit to help you with this event?
- What MPACT materials will you be collecting/saving during the class to share during the Community Event?
- Is your printer working? Do you need filament?

4 weeks before the event

- See if you can get funding from the parents' association for food.
- Solicit food / baked goods from families.
- Solicit volunteers to help with the day of the event.

2 weeks before the event

- Send invites to school, community, media

1 week before the event

- Send reminders
- Confirm volunteers, food, materials
- Make / 3D print prizes for raffle

Day of the event

- Set up the tables / room
- Set up 3D printer, level the print bed, start print

Participants

- Community & family members
- Teachers and other district staff
- Photographer / Videographer
- Consider reaching out to local news or district/school newsletter to announce the event as well as to report and document on the success of your MPACT Community Event.




- Local businesses that do 3D printing or design

Materials

- Computers with Tinkercad
- 3D printer(s) & filament
- Making materials: paper, pencils/markers, tape, other prototyping materials
- Raffle tickets
- Name tags
- Stages of Design posters, one in each station
- Samples of 3D printed objects from class, at each station
- Tinkercad instructions for home use
- Comment poster: Have a poster at the exit. Give families 3 dot stickers to share their comments.

Comment poster (make posters on large poster chart paper)

Please place a sticker in each row.

			
1. I learned something new			
2. I had fun			
3. I would participate in another event like this one			

Volunteer poster

	Please write your name and contact information on a sticky note.
I want more information about 3D printing or making.	
I want to volunteer around 3D printing or 3D making.	
I have questions about my students' work.	

Example Agenda for the Event

Below are suggested timings for either an event for a weekend or an event for a weekday evening.

Sat 3 hrs	Evening 2 hrs	Activity	Description
15 min	15 min	Light breakfast or evening snack	
15 min	15 min	Introductions and welcome	Staff intro "Get to know you" activity (improv) MPACT and 3D modeling and printing (get student to do if possible) What students have been doing
5 min	5 min	Set norms & how it will work	"Over the next hour+, we'll have folks go to each station. We'll give you 15 minutes at each station to hear what students did and to try out some of the things students were doing. You may not have time to complete tasks here, and it's ok to continue doing it at home." Every family should get an exit ticket to collect stamps from each station they visit. Each completed sheet will be submitted for a raffle. Three winners will get their bookmarks printed.
80 min	60 min	Stations	One or two activity stations for each module, one station should have a 3D printer demo. Give 15 minutes per station, then ring bell for families to move around.
20 min	15 min	Wrap up / Raffle	"What have we learned?" Call for volunteers Raffle

Agenda Details

Light breakfast or evening snack

Participants get this as they come in

- Have people fill out the sign in, name tags, and the raffle ticket
- **Food**
 - Breakfast: coffee, juice, bread-like thing (muffin, etc), fruit
 - Evening snack: cheese and crackers, veggie tray, water, juice
- Have people get the food, then take a seat for the first part of program

Introductions and welcome

Whole group

- Your hosts for this evening: Staff intro
 - Very quick, just so people know who hosts are.
 - Make sure they know that every student there is a resource to help participants learn
- “Get to know you” activity
 - What would be a good improv here?
- MPACT and 3D modeling and printing (get student to do if possible)
 - What’s MPACT: have a small group of students write up their statement about what MPACT is. Check with Teacher’s Guide intro to make sure important points are covered.
 - Students show 3D printed object, explains with poster or ppt how it works
 - What students have been doing: teacher gives overview, focusing on anecdotes of cool things students did.

Stations based on projects (if you have more than one grade’s worth)

Show and tell style

One or two stations for each module, one station 3D printer demo

- Students should go to stations immediately at end of improv game—if you have 30 kids and 7 stations, that is 4-5 kids per station
- Explain to participants that there should be X people at each station at a time ($X = \text{num of participants} / \text{num of stations}$) and 15 minutes per station (adjust for total time)
- Students take turns for each 15-minute section, having two stand and explain their project, with a poster and objects they made
 - Points to cover at each project station
 - Goal of project: what type of object and for whom?
 - Process they used: Use the design/make cycle
 - Requirements they figured out

- The object(s) they made and how they met requirements
 - 3D printer station.
 - In advance, get student volunteers to be at this station. Ensure gender/race diversity among the volunteers.
 - Have one object printing the whole time that will take up to an hour
 - Students should follow up on earlier description of how it works, pointing out the parts on the actual printer.
 - Make sure participants keep hands off printer
 - Students say what they think is cool about 3D printing
 - Students should mention problems and how they solved them, if they know.
- Ring a bell or use an attention-getting signal (e.g. contagious clap). Ask participants to move to next station

Design stages stations

There is one station for each of the stages of design.

Collect Ideas Station

- **5 min** students explain the stage of design, with a poster and objects they made.
 - What did you do in collecting ideas?
 - Requirements they figured out for their project
- **10 min** visitors interview each other to try out the activity of 'collecting ideas' about the project theme students came up with.

Prototype Station

- **5 min** students explain the stage of design, with a poster and objects they made.
 - What did you do in prototyping?
 - What design requirements did you have to work from?
 - Examples of prototypes they made...
- **10 min** visitors use paper, pencil, and tape to make a prototype. Here are some examples:
 - Redesign the hammer so it also is a screwdriver
 - Redesign a blender that is also a sieve.
 - Redesign a toothbrush so that it is also a flosser.
 - Redesign a __ that is also a __.

Design on Paper Station

- **5 min** students explain the stage of design, with a poster and objects they made.
 - What did you do in Design on Paper?
 - What design requirements and prototypes did you use to work from?
 - Examples of designs they made...
- **10 min** visitors use paper, pencil, and tape to design something related to the project theme students came up with.

Design on Computer Station (2 or 3 computers/devices with Tinkercad)

- **5 min** students explain the stage of design, with a poster and objects they made.
 - What did you do in Design on Computer?
 - What design requirements and prototypes did you use to work from?
 - Examples of designs they made...
- **10 min** visitors use computer to design a bookmark.

Make the Real Thing Station

- There's a 3D printer going at this station
- **5 min** students explain the stage of design, with a poster and objects they made.
 - What did you do in Make the Real Thing?
 - Did they have to assemble anything? Did it work?
 - Examples of prints they made
- **10 min** visitors use paper, pencil, and tape to design something related to the project theme students came up.

Wrap up

Whole group together again

- What have participants learned? Popcorn style
- Call for volunteers and donations of materials
 - Discuss roles that can be taken/needs
 - Pass around sign-up sheets while you are talking
- Raffle
 - Select three exit tickets (at random). Each family will get one pre-printed bookmark or can have the one they made printed (for delivery at a later time).