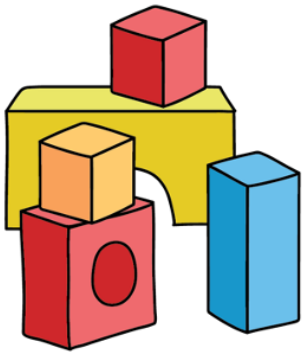
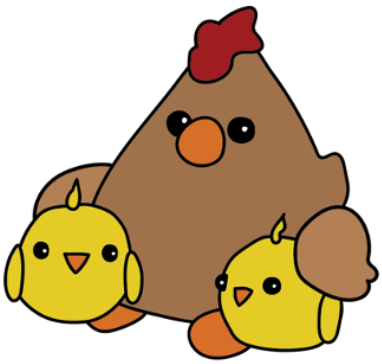
MFS READY, SET, GO! Engineering

Integrating Engineering into the RSG! Classroom

July 2023





Acknowledgements

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This guide was prepared collaboratively by the Ready, Set, Go! Engineering project team: Gina Svarovsky, Catherine Wagner, Scott Pattison, Maria Quijano, Amy Corbett, Diana Contreras, Smirla Ramos-Montañez, Viviana Lopez-Burgos, and the Ready, Set, Go! team.

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Goals of this Guide

This *"Integrating Engineering into the RSG! Classroom"* guide aims to be a helpful resource as you think about integrating engineering into the RSG! classroom. We have learned so much together as part of this project. The goals of this guide are to (1) bring together the many resources created – some of them by you! – and (2) provide support for the RSG! team as you continue to engage children and families in engineering.

This version of the guide is created for the RSG! team. As we continue to work together, we hope to update these resources in the future. Someday, we would like to share parts of this guide with other educators. For now, what is compiled here is for your use. You'll notice that some of the QR codes and links included in this guide point to the work that you have done as a team this past year – such as your brainstorming of how you might bring these engineering activities into the classroom. Other examples provided come directly from the experiences you shared in the post-activity surveys during the 2022-2023 year.

Special Note – Early RSG! Sites and Home Visiting Teams

From conversations with the RSG! team, we have learned that incorporating engineering activities into the Early RSG! classrooms (ages 0-3) and on home visits has brought its own unique set of opportunities and challenges. As this guide is tailored specifically to the RSG! classroom, we acknowledge that parts will be less relevant to other contexts – those in the 0-3 age range or in the home environment. We hope that future collaboration will allow us to keep learning together how engineering activities may be adapted across different contexts. However, we hope that the materials below can still be worthwhile and valuable for use in the Early RSG! Sites and Home Visiting Team contexts.

Introductory Letter

Dear RSG! Staff,

At RSG! we believe in innovation and bringing the latest and best learning experiences for our families, students, and community. From 2019-2023 through this wonderful grant from the National Science Foundation we worked to find out how Engineering looked like at home with siblings and caregivers during the pandemic, how it looked during a home visit with one of our Family Support Coordinators, and how families approached Engineering in our RSG! Classrooms.

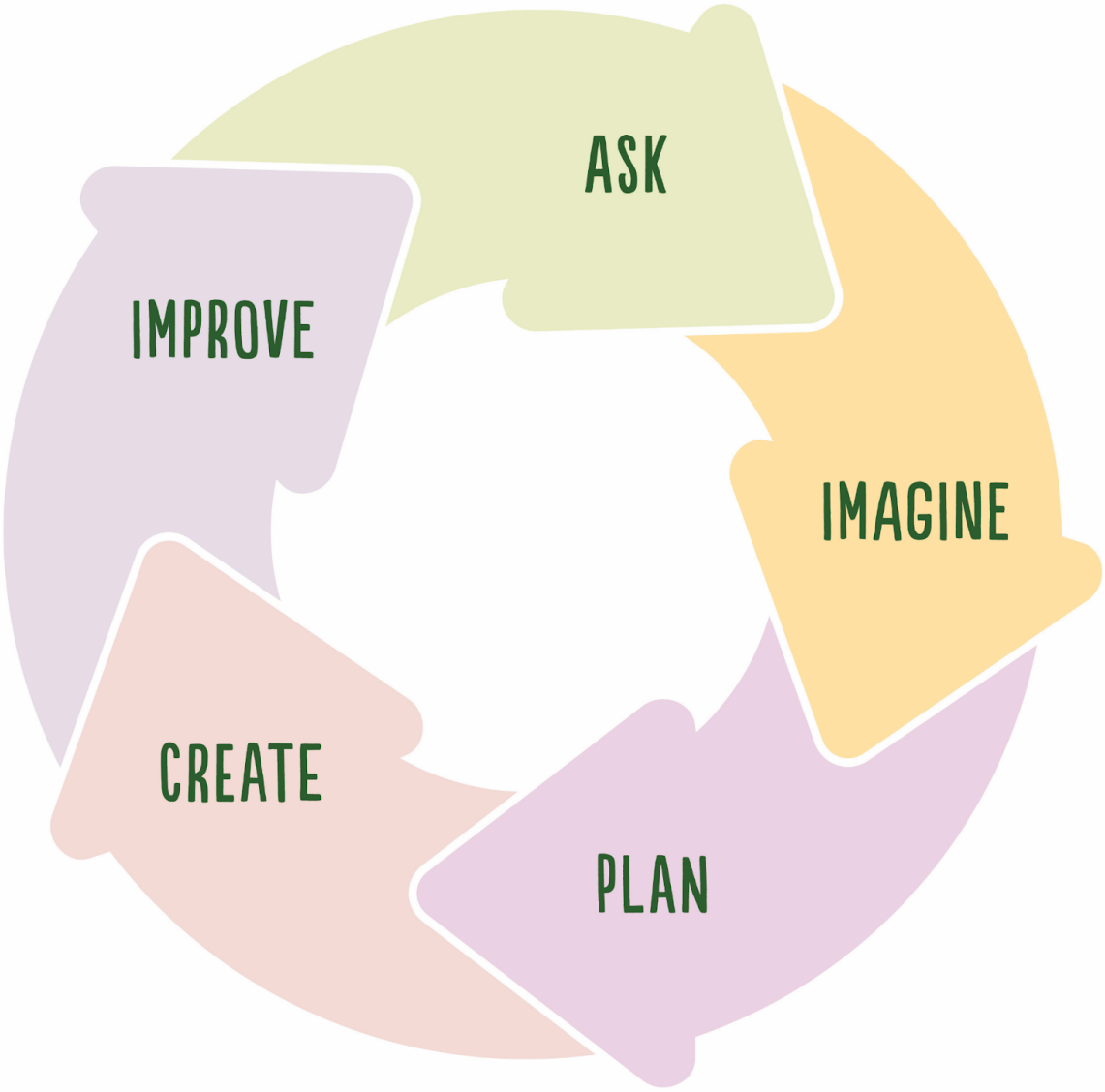
The partnership with REACH-ECE has been an incredible opportunity for staff to build on and straighten their professional tool box. As services have been provided in both classroom and home visiting settings, staff have had the opportunity to bring ideas and concepts of engineering into parent-child interaction activities. Children instinctually explore the world around them, and notice how things work together and how they can have a direct impact on making something happen. That's engineering! This partnership has allowed staff to grow confident in how to label and talk about engineering in the interactions they have with families and children. We are excited to continue incorporating the engineering process into the work we do with families to come. Engineering is now a part of the RSG! Model! This is good for RSG! and good for MFS as it helps us to further differentiate our model from other two generation programs.

In the end, it has truly been an honor to work alongside and learn from our Notre Dame Team, Gina Svarovsky and Catherine Wagner, as well as our TERC team, Scott Pattison and Smirla Ramos Montanez. In the spirit of future collaboration we want to make sure that the four years we spent testing, learning, and integrating Engineering in RSG! lives on for many more years to come. I hope this handbook serves as a guide and north star when looking for ways to integrate and expand Engineering into our classrooms, home visits, and with families.

Sincerely,
RSG! Managers Maria Quijano & Diana Contreras and Chief Program Officer Amy Corbett
July 2023

RSG! Staff and Project Team, May 2023

Engineering Design Process



ASK	IMAGINE	PLAN	CREATE	IMPROVE
Ask questions to understand the problem and what you need to solve it.	Brainstorm as many possible solutions and designs as you can.	Pick a design and decide how you will use your materials.	Build and test your design to see how well it solves the problem.	Make changes to your design based on what you learn.

What does engineering look like for young children and their families?

Engineering is more than buildings, bridges, and roads
Engineering is important for designing and creating the structures, technologies, and processes all around us. And it's a problem-solving process that each of us use in our jobs and everyday lives.

Children can engage in engineering at an early age
Through our research, we have documented the many ways that preschool-age children and their families engage in complex engineering design practices. These families are helping us learn about all the clever and imaginative ways young children can engage with engineering.

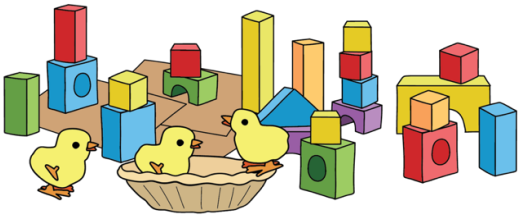
The engineering cycle is flexible
The engineering design process on the previous page is a helpful model. But children, families, and even professional engineers don't follow these steps in the same way every time. Children can engage with only one or two steps, or they can use the steps in a different order--like testing a design and then deciding they have to go back and do some planning.

Play and imagination enrich children's engineering engagement
The imagination, creativity, and playful approaches children and families bring to engineering activities enhance and deepen their engineering engagement, helping them find creative solutions or extend the activities in ways that connect with their interests. Incorporating storybook characters and stuffed animals in engineering activities encourages children to practice empathy and create solutions that meet the needs of others.

Engineering supports child and family learning goals
Families use engineering activities to support many other learning and development goals. For example, the activities can help families spend more time together, practice collaboration among siblings, support bilingual language development, or talk about dealing with frustration and other strong emotions.

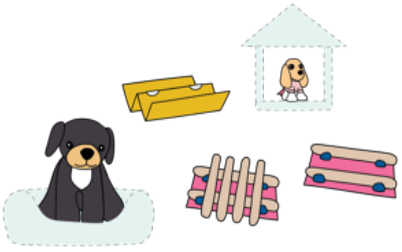
Using Research-based Engineering Activities in the RSG! Program

The following section includes suggestions for how you might try to incorporate each of the following engineering activities into your classroom. These are just suggestions – please feel free to adapt the prompts, design challenges, and materials as you see fit! You know your classrooms, kiddos, and families best.



These activities were developed as part of the ***Ready, Set, Go!* Engineering Project,** which is a collaboration between Metropolitan Family Service, TERC's Center for Equitable Family STEM Learning, and the University of Notre Dame. Beginning in 2019, the *Ready, Set, Go!* Engineering Project initially intended to focus on learning how families engage in engineering in the RSG! classroom. However, with the global coronavirus pandemic, the focus of the project shifted to the home learning environment. Sixteen families in the RSG! program participated in the research project and were involved in three mini-cycles of engineering activity testing. These cycles resulted in the three engineering activities described below - *Los Pollitos*, *Doggies*, and *Tacos* - that were later adapted with the RSG! team for the classroom.

Throughout the project, the research team collaborated closely with MFS staff and families. In 2022, the project team extended the work back into the classroom. During the 2022-2023 school year, the project team completed case studies with two RSG! sites, as well as conducted professional development workshops with the broader RSG! team to continue to learn from and with the team about engineering activity implementation and children and family engagement in the classroom setting.



Los Pollitos Activity

Description: The *Los Pollitos* activity asks families to use wooden blocks and rectangular boards to keep a family of baby chicks safe and cozy.

Image of the Los Pollitos Activity

Materials List for RSG! Kits

- Books: *The Chick that Wouldn't Hatch* by Claire Daniel and *Los Pollito Dicen* by Ashley Wolff
- 4 wind-up chicks
- 1 stuffed hen
- 1 basket for nest
- 100 wooden blocks
- 8 matte cardboards, 5x7 in.
- Activity guide

For more ideas to get started from the RSG! team, go to https://tinyurl.com/rsg102022 or scan this QR code:

Getting Started

- *Prompt for table*: Can you build something to keep the baby chicks safe and cozy?
- *Materials*: Start with two or three chicks, the hen, and the blocks on the table.
- *Introducing activity to families:*: Consider telling families at the beginning of the session that today's class will feature an engineering activity focused on building something to keep baby chicks safe and cozy. Sing the Los Pollitos Dicen song or read a related book.

Activity Extensions

- *Alternate prompts:* Consider encouraging the children to build their favorite place for the chicks, or intentionally provide limited space to encourage them to build up, not out
- *Additional materials:* Consider adding farm animals, sand, craft materials, different blocks, or dry corn
- *Additional ideas for introducing the theme of the activity:* Consider talking about farm animals, going to a petting zoo, singing "Old McDonald Had a Farm," using instruments during the songs, expanding on the farm theme

Engineering Practices to Look For

- **Planning**: Caregiver asking questions like "How can we build a house for the chicks?"
- **Context setting**: Families singing the "Los Pollitos Dicen" song
- **User-centered design**: Caregivers talking to their children about how to help the momma hen create a cozy nest for the pollitos so they stay warm during the winter

Los Pollitos activity set up in an RSG! classroom.

RSG! family's design for the Los Pollitos activity.

Doggies Activity

Description: The *Doggi*es activity invites families to use craft materials (e.g., popsicle sticks, index cards, sticky dots) to build beds or houses that are just the right size for a small and large stuffed dog.

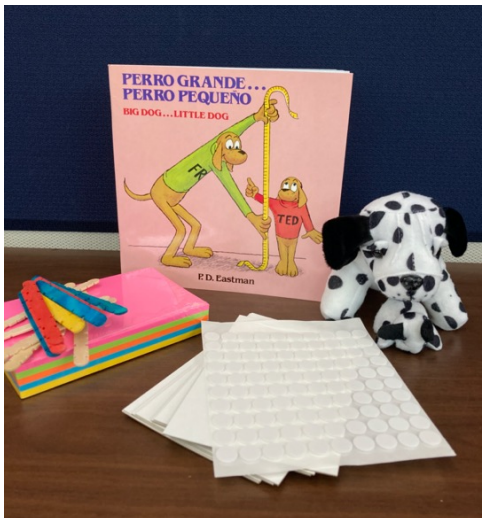


Image of the Doggies Activity

Materials List for RSG! Kits

- Book: *Perro Grande, Perro Pequeño* by P.D. Eastman
- 2 stuffed doggies (big & little)
- 8 matte cardboards, 5x7 in.
- 100 index cards, 4x6 in.
- 25 plain popsicle sticks, with notches
- 25 color popsicle sticks, with notches
- Foam adhesive dots, large sheet
- Activity guide

For more ideas to get started from the RSG! team, go to https://tinyurl.com/rsg011923 or scan this QR code:

Getting Started

- *Prompt for table*: Can you build a house or a bed for one of the doggies?
- *Materials*: Put some building materials out on the table, along with the two doggies.
- *Introducing activity to families:*: Consider telling families at the beginning of the session that today's class will feature an engineering activity focused on building a house or a bed for a doggie. Read the book included in the kit during circle time.

Activity Extensions

- *Alternate prompts:* Consider inviting families to build a park for the two doggies, or asking them what they could build to help the doggies go to sleep
- *Additional materials:* Consider adding craft materials, blocks, foam sheets or fabric
- *Additional ideas for introducing the theme of the activity:* Consider setting this up at the art table, manipulatives, or sensory areas, or allowing families to choose which center they bring the materials to

Engineering Practices to Look For

- **Planning**: Caregiver having a conversation with her child about why the doggies need a home and what they could do so they were warm and protected from the cold
- **Evaluation and Revision**: Caregivers helping to test the length of the design to see when it was high enough for the bigger dog to fit
- **Modifying the Design Space**: Kids expanding the design challenge to make clothes and other accessories for the doggies like a headband

Doggies activity arranged in an RSG! classroom

Doggies materials prepared for families in an RSG! classroom

Tacos Activity

Description: The *Tacos* activity asks families to plan a taco party and test different processes for helping guests assemble their tacos.

Image of Tacos Activity

Materials List for RSG! Kits

- Book: *How to Fold a Taco* by Naibe Reynoso
- 6 palm leaf platters (6x3 in. rectangle)
- 6 palm leaf platters (6x9 in. rectangle)
- 10 brown felt tortillas
- 50 red pom poms
- 50 white pom poms
- 40 mini popsicle sticks ("scored" with brown marker)
- Small bag (~48 pieces) of yellow felt, cut into strips
- Small bag (~64 pieces) of green felt, cut into strips
- (Home Visiting kit: add 6 paper bins)

For more ideas to get started from the RSG! team, go to https://tinyurl.com/rsg031623 or scan this QR code:

Getting Started

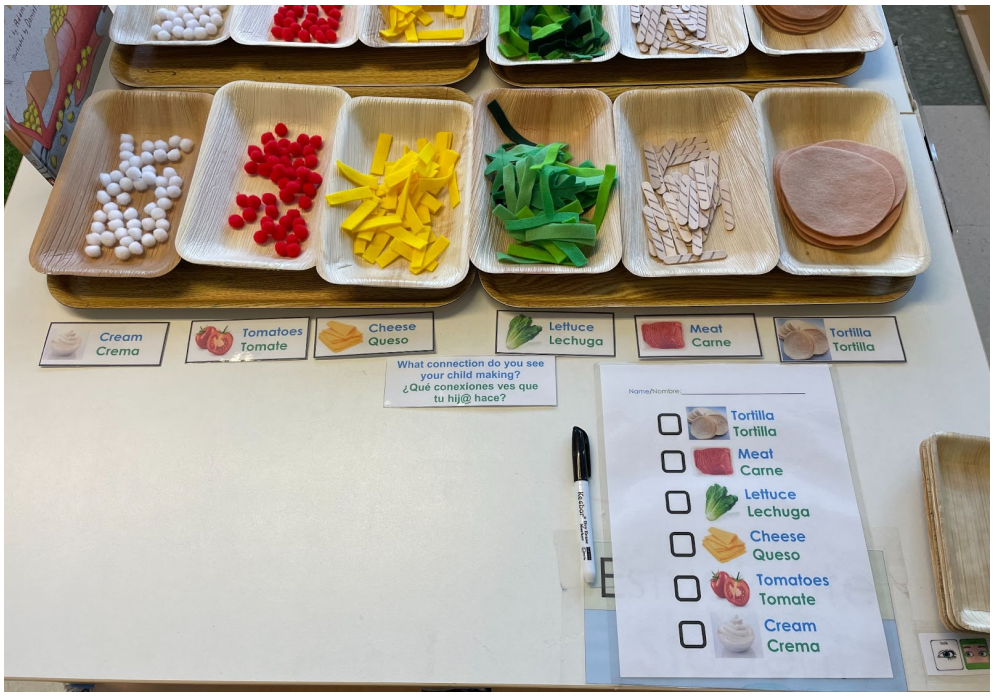
- *Prompt for table*: Can you plan a taco party for your family and friends?
- *Materials*: Put bags of ingredients out on the table, along with plates and bowls.
- *Introducing activity to families:*: Consider telling families at the beginning of the session that today's class will feature an engineering activity focused on planning a taco party. Read the book included in the kit during circle time.

Activity Extensions

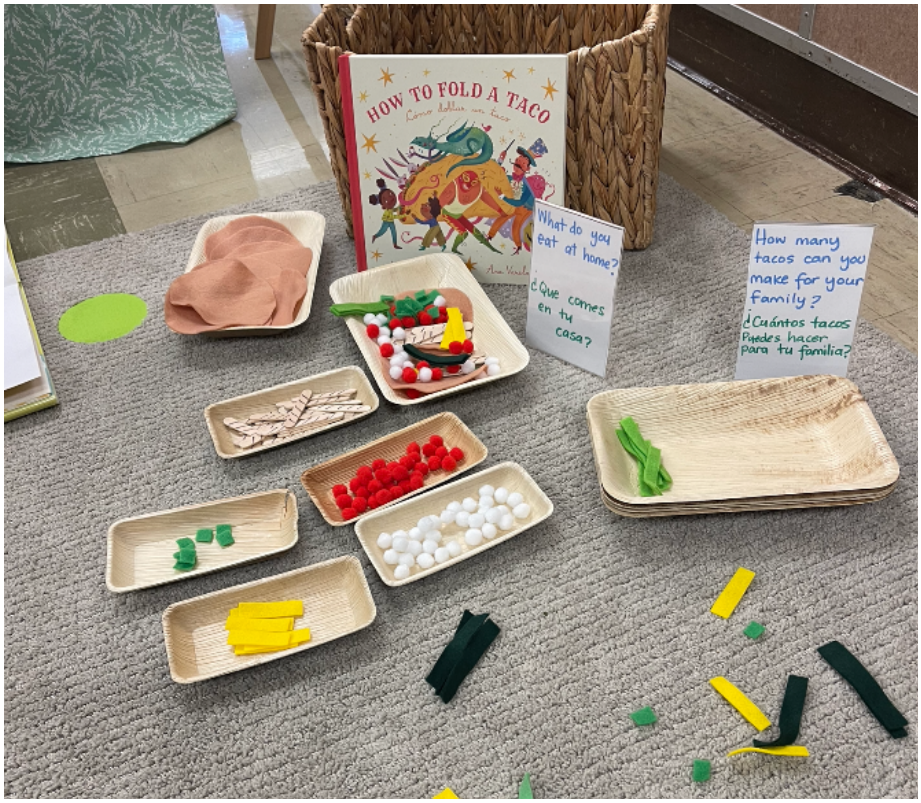
- *Alternate prompts:* Consider asking families how many different kinds of tacos they can create, asking children to take orders for tacos from a food truck, or inviting children to ask their caregivers' ingredient preference
- *Additional materials:* Consider using current furniture for a "taco stand," adding other vegetables, providing a menu, a cash register, and money, adding a tortilla press, or adding the book *Taco Tuesday*
- *Additional ideas for introducing the theme of the activity:* Consider setting up in the drama area or serving tacos as a real snack

Engineering Practices to Look For

- **Context Setting**: Families discussing a recent vacation in Mexico where they found a favorite taqueria and using this to recreate the taqueria for this activity
- **User-Centered Design**: Children asking their caregivers for their favorite ingredients to add to their taco
- **Modifying the Design Space**: Children creating a new design challenge by making an empanada or quesadilla instead of a taco



Tacos activity materials adapted to include a menu in an RSG! classroom.



A family arranges the Tacos ingredients in an RSG! classroom.

Listening for Engineering in the Classroom

As seen throughout this guide, there are named engineering practices that were listed as examples for each activity. Below is a list of the definitions of the most common engineering practices demonstrated by families throughout the REACH-ECE study.

Engineering Practice	**What to Listen For**
Context setting	Family talk about the story or context motivating the design challenge, such as reading the activity book or introducing a backstory for the characters. Families may talk about an imaginary or real story or context, and they may also include their own stories and experiences.
Problem-scoping	Family talk about the boundaries or constraints of the problem or design challenge. Families may restate the goal or discuss the materials that are needed or available for the challenge.
Planning	Family talk about design ideas and what the they are going to build or create in order to address the design goal.
Evaluation and revision	Family talk about testing, evaluating, or revising the current design. Families may talk about how they are testing their design, or how they are making changes based on what they learned from testing it.
Modifying the design space	Family talk about changing the design challenge by adding a new goal, a new story or context, or new constraints. For example, families may add a character to the situation, which would change what they need to design.
User-centered design	Family talk referencing the goals, needs, or experiences of an "end-user" that informs the design challenge, process, or solution. The "end-user" could be a character, person, or community, and they could be real or imaginary.

Facilitating Engineering Activities with Families in the RSG! Classroom

As you begin to invite families into more engineering activities in the RSG! classroom, it may be useful to know some common questions/facilitation moves that can spark, sustain, and deepen[1] the engineering engagement of both children and adults. Here are some ideas to have in your back pocket as you walk around the classroom and see families working on their designs:

1) Questions/facilitation moves that can help "spark" engineering engagement and help families get started with the design challenge

- Invite families to explore and play with the materials.
  - **What materials do they think they want to work with first?**
  - **Have they played with the materials to see what they can/cannot do?**

- Ask families to clarify/state the design challenge or the design goal.
  - **Do they know what they are being asked to do at the activity, and what they have to work with?**

- Ask families if they have a plan for what to do.
  - **Do they have any ideas to get started?**

- Ask families how, if at all, they have considered the needs of the person/thing who will use the design.
  - **For example, what are they creating that will make the baby chicks feel warm? Is that different than thinking about how to keep the baby chicks safe and dry?**

2) Questions/facilitation moves that can help "sustain" engineering engagement, and help families keep working on their designs once they've gotten that first solution together

- Invite families to "test out" their design and see if it really works. If it doesn't, encourage them to think about how to continue revising/improving their design – and be sure to say that engineers always appreciate when their early designs topple over so they can learn from them and make future designs better!

[1] The original Spark, Sustain, Deepen framework was developed by the Tinkering Studio team at the Exploratorium, and can be found at https://www.exploratorium.edu/tinkering/our-work/learning-and-facilitation-frameworks.

- Ask families to think more about the person/thing they are designing for. **What might make the design better for that person/thing?**

- If there are other examples of things that have been built by other families/children, asking questions about what the families see in those other designs, or what inspiration they can draw from them, can be helpful.

3) Questions/facilitation moves that can help "deepen" engineering engagement, and help families go further in their engineering thinking

- Invite families to try making their design with fewer materials. **Can they make it just as good, but using fewer blocks?** This gets at design optimization – a complex engineering topic that focuses on maximizing effectiveness while balancing how many resources are used.

- Ask families to engage in a slightly modified design challenge. **Can they make the design taller? Stronger? More comfortable?**

- Ask families to reflect on whether engaging in this activity reminds them of anything else from their lives, and dialog about that. This connects to the Everyday Engineering message we hope to share.

Example Questions by Activity

Activity	Pollitos	Tacos	Doggies
*Questions that "**Spark**" engineering*	• Can you build something to keep the chicks safe and cozy?	• How would you set the table if your guests are going to make the tacos themselves?	• What are some different ways you think these materials can be used together to build something?
*Questions that "**Sustain**" engineering*	• How do you think you could create something for two chicks instead of just one?	• What would you change if one of your guests doesn't want a tortilla as part of their taco?	• What are some other ways you can make the doggies more comfortable?
*Questions that "**Deepen**" engineering*	• Does this activity remind you of anything you've done before?	• What other dishes/dinners can you make with these ingredients?	• Do you think you could make another house or bed for the other doggie?

Additional Considerations

1) The sets of questions presented above can also be seen as a progression, moving from getting families started with an engineering activity, to helping them stay engaged with it, to extending the activity to new levels. You can also think about how you'd like to spread these questions out over time – for example, you could potentially use one set of questions a week as you invite your families deeper into engineering thought and action.

2) In addition to the engineering focused questions above, there are also questions that you can ask that can generally help families working together on these design challenges, which may be a less familiar type of activity overall. For example, you can ask questions or make comments that:

    a. Help parents think about the different roles they can take on during engineering design activities; and
    b. Help parents deal with situations that might be frustrating for their child (and them!), such as when designs aren't working the way they want them to.

Help families feel empowered to take the design challenges in directions they want to go – such as working on other developmental skills, imagining new contexts or challenges for characters involved with the design challenge, or shifting to more of an exploration/inquiry type of activity.

Integrating Engineering into the RSG! Classroom in Additional Ways

There are many ways to bring more engineering activities, thinking, and play into the RSG! classroom! Here are a few ideas to think about to help you get started:

1) Incorporate books and stories with engineering ideas into circle time

Possible examples include:

- *Rosie Revere, Engineer* by Andrea Beatty
- *The Most Magnificent Thing* by Ashley Spires
- *What Do You Do With An Idea?* by Kobi Yamada
- *What To Do With A Box* by Jane Yolen and Chris Sheban

2) Introduce the Engineering Design Process to families

For more information and videos to help with this, go to the site below or scan here:
https://www.terc.edu/hse/resources-for-families/everyday-engineering/

3) Engage parents in discussions that invite stories or examples of the "everyday engineering" they take on in their daily lives

These questions are probably better suited for the RSG! Parenting Class, after the Interaction groups. Examples of questions we have used in our projects before include the following:

- Can you tell us about a time when you tried to make something? How, or why, did you choose the materials or ingredients? Did you ever have to start over or change directions?
- Do you think you'd try these activities – or similar ones – at home? What are some of your ideas?

4) Name and label engineering in the RSG! classroom when you see it

Here are some ideas to try:

- When you see kids brainstorming, call that engineering!
- When you see a child building something and it falls down, say that engineers love when things they are designing topple over, because that's how they learn to make better designs in the future!

- When you see kids or families working collaboratively to solve a problem, give them a shout out and say that engineers need to work together to solve problems all the time!
- Please see the "Facilitating Engineering" guide for more ideas about asking engineering-related questions and providing suggestions for deepening engineering engagement to families.

5) Create opportunities for families to engage in engineering activities

Here are some things to try:

- You can use the three activities from the RSG! Engineering! project to get started.
- You can create new engineering activities based on books you have in the classroom. What is a problem that one of the characters encounters? Can the families build or imagine solutions to it at a tabletop station?
- Think about the materials/stations you usually have out. What is a design challenge you could create for that station that your families could engage in? What problem would they be trying to solve, using the materials at the station?

Creating Parent-Child Interaction Group Tabletop Activity Prompts

One powerful way that RSG! staff can incorporate engineering into parent-child interaction groups is by providing engineering-related prompts at family activity stations. This section provides examples of what these types of prompts might look like and how they relate to the types of inquiry prompts that the RSG! program already provides for families.

Tabletop Prompts

The table below provides example inquiry and engineering prompts for each of the activities from the RSG! Engineering project. The table outlines three types of prompts: (1) basic inquiry prompts for encouraging families to explore the activity materials; (2) an initial engineering prompt that states a basic engineering design challenge for the activity and focuses families' attention on the activity goals and constraints; and (3) a secondary engineering prompt that encourages families to go deeper and think about ways they can improve or modify their designs to better meet the needs of the "users" (e.g., stuffed dogs, baby chicks, party guests). You can use this series of prompts any way you want. One way to use the prompts is to start with the initial inquiry prompt one day and then rotate in the engineering prompts on subsequent days or weeks to engage families in different ways with the same materials.

Activity	Inquiry Prompt	Engineering Prompt 1	Engineering Prompt 2
Doggies	What can you create with these materials? Can you use the materials to create something that stands up on its own?	How can you use these materials to build a bed or house that is just the right size for each dog?	Besides a bed or house, what else can you build with the materials to help the dogs feel cozy and comfortable?
Tacos	What different types of tacos can you make with these ingredients? What other types of food can you make?	How can you plan together to host a taco party for your friends and family? Use the plates and bowls to organize the ingredients.	Who will assemble the tacos, you or your party guests? How many ingredients will guests want and in what order? How will you clean up and organize everything once the party is over?
Los Pollitos	What can you build with these materials? How can you stack the materials in different ways?	How can you work together to build a safe and cozy place for the baby chicks?	How will you keep the chicks contained? How can you protect the chicks from sun and rain? Do the chicks need something tall to stay safe at night?

What makes a good engineering prompt?

A successful engineering activity for young children and their families typically has a context or story to frame and motivate the activity (e.g., Fox and Hen), engaging materials to create, build, and test (e.g., blocks, index cards), and a clear design challenge (e.g., build a one-foot tower to protect the baby chicks). Our research on this project also suggests that an imaginative design context and narrative prompts (e.g., book, pictures, stuffed animals) support families and children in using their imagination to set the design context, evaluate and revise their solutions based on imagination-driven constraints, creatively modify the design space, and engage in user-centered design.

Given this, here are a few elements you can think about when designing your own engineering design challenge prompts:

- Focus on a meaningful and motivating ***design goal*** that is relevant to young children and their families (e.g., "build a bed or house for the doggies")
- Suggest possible ***criteria for success*** (in other words, how families will know if they meet their design goal) but also leave room for families to use their imagination to personalize and expand on the criteria (e.g., "build a bed or house that is *just the right size* for each doggy" or "make sure the bed and house are *safe and cozy*")
- Consider adding ***additional constraints or criteria*** to help motivate deeper engagement with the engineering design process, and create space for families to add their own goals, constraints, and criteria (e.g., "What if the house had to *fit both doggies* at the same time?")

What makes a good inquiry prompt?

A successful inquiry prompt is open ended and expands on the lesson and materials that are being presented. It fosters and supports exploration of the materials, inviting the child and caregiver to use their imagination. It can also challenge and expand on what can or cannot be done with the materials and deepen our understanding of and relationship with the materials and our place in the world. A successful inquiry prompt has the following characteristics:

- Is open ended
- Focuses on one or more areas of learning (e.g., exploring colors, emotions, how things work, family, etc.)
- Lets children use their imagination
- Lets children interpret the materials in relation to their own lived experience
- Lets children explore materials in ways that can expand their interpretation of how the materials are usually or can be used
- Introduces different perspectives
- Creates a connection between the materials and personal experiences

Developing New Engineering Activities

Once you feel more comfortable thinking about incorporating engineering into your RSG! work, you may want to develop your own engineering activities using books and materials in your own classrooms. Below are some guiding questions that can help you think through your activity as you plan it.

Part 1: Setting the Context

- Choose a book you'd like to focus the activity on. Who are the main characters?
- What are some problems, challenges, or situations that the characters might face, either as part of the story or something in the future?
- List as many of those scenarios as you can think of in the table below.

	Scenario #1	Scenario #2	Scenario #3
Character(s)			
Description of a problem, challenge, or situation they might encounter			

Part 2: Identifying Your Materials

- Think about the materials in your learning environment. What can children/families build with these materials?
- As you look at your scenarios, which ones seem like a good match for your materials?
- Can they build several different versions/ideas out, or is there only one solution?

	Material A	Material B	Material C	Material D
Possible Building Materials				

Part 3: Outline Your Design Challenge

Context and Materials

What is the best pairing coming out of parts 1 and 2?
(For example: The baby chicks need to be protected from the sun and rain, and you have a lot of building blocks that families can use to create a shelter.)

Meaningful Design Activity

What will you ask children/families to do as part of this activity?

What will your "design challenge prompt" be?
(Alternatively: What is the prompt you'll put on the table for families?)

How might the activity connect to family histories, cultures, and/or experiences?

"Criteria for Success" for Designs

What is the goal of the designs that families will build?

How will they know if their design has met the goal?
(Remember, this will probably include some imaginary "successes", since the families are engaging in pretend play/design with toys such as fuzzy baby chickens or stuffed doggies)

Ideas for extensions

What are some additional prompts you could present to families? What other materials might you include? What other ideas would you want to try with this activity?

Additional Resources

Websites and Links

- **Everyday Engineering Video**, available in English, Spanish, and Arabic: https://www.terc.edu/hse/resources-for-families/everyday-engineering/

Books, Articles, and Reports

- Stone-MacDonald, A., Wendell, K., Douglass, A., & Love, M. L. (2015). *Engaging young engineers: Teaching problem solving skills through STEM*. Brookes Publishing.

- Pattison, S., Ramos Montañez, S., Svarovsky, G., & Tominey, S. (2022). *Engineering for equity: Exploring the intersection of engineering education, family learning, early childhood, and equity*. https://blog.terc.edu/engineering-for-equity