

Girl Scouts of Sycamore Council

Building Art

Brownie Girl Scout Try-It

Overview

This guide provides troop leaders with a template for three troop meetings that center around the topic of architecture and engineering. Girls will earn the Building Art Try-it at the end of the last session. Activities that are starred (*) are those that are required to meet the try-it. All other activities are optional and have been created as a guide to help leaders plan their troop meetings.

Activity topics

Meeting One: Buildings Need To Be Strong

Meeting Two: Let's Build a Bridge!

Meeting Three: Design a Girl Scout Meeting Place

Types of activities

Create a gumdrop building!

Build a bridge out of newspaper!

Design the perfect Girl Scout meeting place!

Girl Scouts of Sycamore Council

Meeting One: Buildings Need to be Strong

Leader advance preparation and supply list

1. White paper and markers or pens if you choose to do the first activity.
2. A handful of pennies (one per girl) and some sheets of paper.
3. Put 7 toothpicks and 7 gumdrops in a plastic bag. One bag for each girl.
4. Put 25 toothpicks and 11 gumdrops in a plastic bag. One bag for each girl.
5. Have additional toothpicks and gumdrops available.
6. Bowls for the gumdrops and toothpicks.
7. Girls will need to be able to work at a table for these activities.

Pre-activity

If you want an activity for girls to do while they wait for everyone to arrive, you can put out paper and markers or pencils and have them draw pictures of buildings in their community.

Opening

Begin your meeting how you normally do (welcome, flag ceremony, song etc.).

Business

Take care of items such as dues, kaper chart, permission slips, etc.

Discussion

Have each girl share her picture of the building that she drew. You can also show girls pictures of the buildings in this packet.

What differences do you see in the buildings? *Pointed roofs, a tower, walls of glass windows, etc*

Who might create these buildings? *Construction workers, engineers, architects, and even interior designers for the inside.*

Would you want to go into a building that wasn't very strong?

What might happen in an earthquake if a building wasn't made to be strong and stable?

Engineers and architects are people who design buildings that will be strong.

Today you are all going to be architects and engineers and will need to discover what kinds of shapes can be used to make strong buildings.

Activities

*Discovering the Strengths of Shapes (required for try-it, pg. 88, activity #3, Brownie Try-it book).

Use your Brownie Try-it book to see the description of this activity. Let girls experiment with paper and a coin to see if squares or triangles are stronger shapes.

What shape or way of folding the paper was the strongest?

Gumdrop Activity:

Now we are going to experiment further and try the same thing, only this time we are going to use gumdrops and toothpicks.

Give each girl a bag with 7 gumdrops and 7 toothpicks. Have each girl make one square and one triangle.

Have girls compare the stability of a triangle and a square by pushing gently on one corner of each.

Which shape bends, twists or collapses more easily than the other?

Square

Did the squares and triangles act the same way whether they were made from paper or from toothpicks and gumdrops?

What is a really strong shape to use when building something? *Triangles*

Make a Gumdrop Dome:

Since we have discovered that triangles make really strong shapes, let's create a dome building that is made up of triangles.

Let each girl create her own dome. If you have younger girls, let them work in pairs and help each other. Give each girl a plastic bag with the 25 toothpicks and the 11 gumdrops.

See the attached sheet for a project description and picture.

After girls create their domes, have them test it for strength.

If you push gently on it does it collapse?

How many triangles do you have in your dome?

Create Your Own Building:

Now let girls use the extra toothpicks and gumdrops to design their own special building or structure. Give them ideas of things to try such as putting two toothpicks together, creating a structure with squares, or a dome that has seven sides instead of five. Give girls the freedom and opportunity to explore and discover their own unique ideas and designs.

Discussion

Can you think of other structures besides a dome that use triangles?

Bridges, bike frames, roofs. You can show girls pictures from this packet.

This week, start looking around your house and community and see how many triangles you can find.

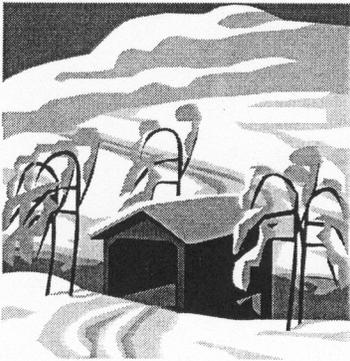
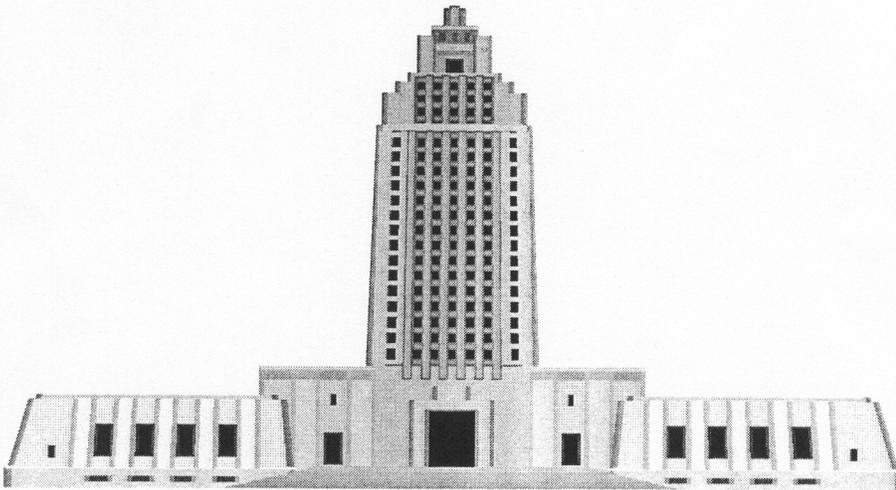
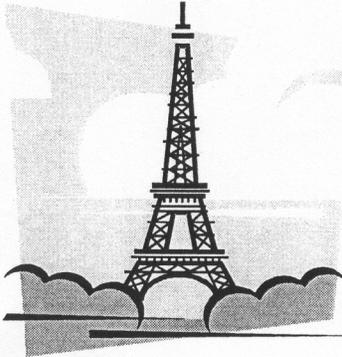
Closure

Finish your meeting as usual with your closing song and/or ceremony and friendship squeeze. Include any reminders for next week.

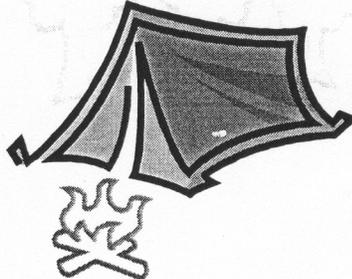
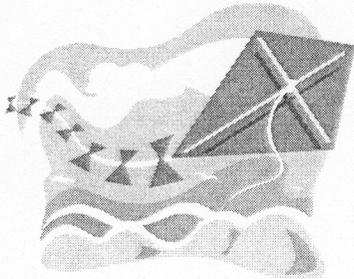
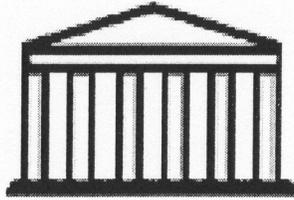
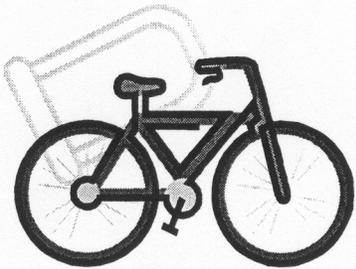
Gumdrop dome

1. Use gumdrops to connect 5 toothpicks in a ring.
2. Use 2 toothpicks and 1 gumdrop to make a triangle on one side of the base.
3. Continue all the way around the base.
4. Use toothpicks to connect the gumdrops on the top.
5. Push one toothpick into each of the top gumdrops.
6. Use one last gumdrop to connect these toothpicks at the top.

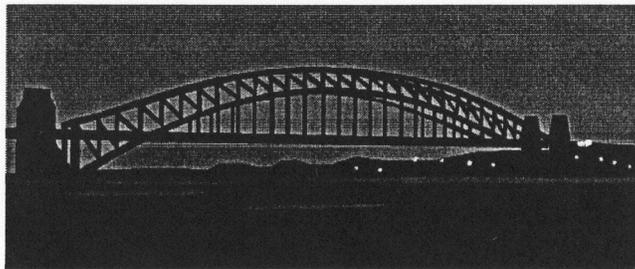
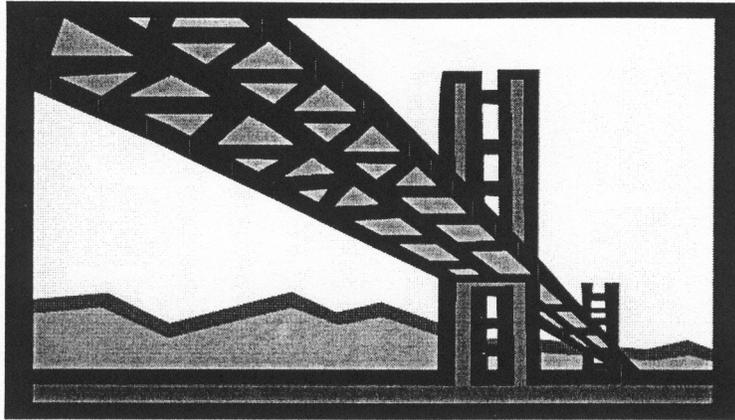
SAMPLE BUILDINGS – WHAT SHAPES DO YOU SEE?



CAN YOU FIND THE TRIANGLES?



SAMPLE BRIDGES



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Meeting Two: Let's Design a Bridge!

Leader advance preparation and supply list

1. Large stack of newspapers.
2. Several rolls of scotch tape and masking tape.
3. Several pairs of scissors.

Pre-activity

Give girls a stack of newspapers and ask them to roll them into tubes and to tape them shut. They can make them into long tubes by rolling them lengthwise or into short tubes by rolling them widthwise. Have girls experiment with creating some tubes out of just one sheet of paper and others out of several sheets together which will make the tubes stronger or weaker. Explain that they are creating materials to use for the model bridge that they are going to construct later in the meeting.

Opening

Begin your meeting how you normally do (welcome, flag ceremony, song etc.).

Business

Take care of items such as dues, kaper chart, permission slips, etc.

Discussion

Today we are going to be engineers. Who remembers what an engineer does?

Today we are going to be bridge engineers and design a model of a bridge that we think would be really strong. Who remembers what shapes we should think about using if we want something to be strong? *Triangle*

Show girls the pictures of bridges in this packet. What different things do you like about each bridge?

Can they find triangles in these bridges?

Activities

*Put on Your Hard Hat (required for try-it, pg. 89, activity #4, Brownie Try-it book).

Challenge the girls to create their own model bridge using the paper tubes. Use tape, scissors, and newspapers to connect the tubes and create an amazing bridge.

Girls may run into differences of opinion as to how the bridge should be built. Try to let them work out the differences on their own. Give coaching only if necessary. This is a great opportunity for girls to learn valuable skills of working together and making decisions as a team.

Discussion

Have girls evaluate their bridge.

Does the bridge seem like it would be strong if it was built out of wood or metal?

How many triangles are in your bridge?

Several engineers usually work together to design something big like a bridge. How did you like working as a group?

Did different people have different ideas?

How did you resolve the differences?

Compliment girls on their great work. If the bridge is stable enough it can be saved to use as a display at a later bridging ceremony or other Girl Scout event.

Closure

Finish your meeting as usual with your closing song and/or ceremony and friendship squeeze. Include any reminders for next week.

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Meeting Three: Design a Girl Scout Meeting Space

Leader advance preparation and supply list

1. One large sheet of paper for every two girls.
2. Pencils
3. Markers

Opening

Begin your meeting how you normally do (welcome, flag ceremony, song etc.).

Business

Take care of items such as dues, kaper chart, permission slips, etc.

Discussion

Today we are going to design the perfect Girl Scout Troop meeting space. First we should make a list of all of the different types of activities that we like to do in our meetings. *You can write these down on big paper.*

If we had a new space for our meetings, what types of activities would you like to be able to do at a Girl Scout meeting? *You can write these down as well.*

Activity

*Design an Ideal Girl Scout Meeting Space (required for try-it, pg. 89, activity #5, Brownie Try-it book).

Have girls work in pairs and give them a large piece of paper and pencils. Have each group draw the perfect Girl Scout meeting place. Have them try to have space to do all of the activities that they talked about during the discussion.

Once they are happy with their design, have them go over it in a dark marker so it is easy to see.

Discussion

Have each group stand up and show their design to the group. Have them talk through their design, pointing out the spaces and what they would be used for.

This gives girls a great public speaking opportunity.

Activity

*Designing Space for Someone with Special Needs (required for try-it, pg. 89, #6).

What would you need to do with your designs if there was a girl in a wheel chair that was part of our troop?

What would you need to change in your designs if there was a blind girl in our troop?

What other disabilities might we need to think about?

If you don't currently have a girl that has a disability in our group should we worry about designing a space that would accommodate a girl with a disability? *Yes, it is important that all buildings are accessible so that if someone with a disability wants to take part in an activity or go into a building they will be able to do so.*

CLOSURE:

Finish your meeting as usual with your closing song and/or ceremony and friendship squeeze. Include any reminders for next week.

Congratulations!
You Have Just Earned the Building Art Try-it!

Program leaps

If your girls are enjoying these types of activities, here are some program leaps you can take:

Begin working on the Movers Try-it.

Invite a female engineer to your troop meeting to give demonstrations about what she does.

Building Art Try-it Evaluation

General Information

Service Unit _____ Troop Number _____

South Seattle Peninsula

of Girls: _____ 1st Grade _____ 2nd Grade _____ 3rd Grade

Years as a Leader: _____

How long are your troop meetings? _____

How often do you meet? _____

Overall, how useful/helpful is this type of guide?

Did you have any problems with the activities?

Would you like to have more try-it guides available? If yes, what try-its would you like some assistance with?

Please return to:

Girl Scouts of Sycamore Council, PO Box 6568, Lafayette, IN 47903-6568