

Rainforest Jungle Gym

Creativity and Inspiration

Our big idea is a jungle gym mixed with learning about the Rainforest layers. The jungle gym is a replica of an actual Rainforest and includes trees, bridges, vines, poles, ladders, nets, monkey bars, slides, mystery boxes, posters and other ways of learning. There will be animatronics (birds and animals) to engage visitors. There are multiple paths to travel through and each level has exits to go back down.

The main floor represents the actual Forest Floor. On this level, visitors can jump like a frog using a trampoline, swing over a river or walk across a bridge. There will be reach-and-feel boxes and you can go inside a tree.

Next is the Understory Layer. You can look in a hole in one of the trees to view the insides. You can read a poster with facts or play a true-or-false game. Put your hands in mystery boxes to feel the different skins of animals.

Keep going up to the Canopy Layer. This layer is the top of the trees, but not the Rainforest. Visitors can interact with mystery boxes, play in the tree house and walk across bridges to reach other sections. Visitors will learn about different trees, rootless plants, insects and birds from this layer.

Climb another ladder and reach the Emergent Layer, which is the top layer. There are mystery boxes to feel and guess what's inside. Inside may be feathers from birds or different leaves and bark from trees. Walk around and see replicas of insects. Look through binoculars to see the Rainforest from the top. Read the facts posters to learn more. Walk on bridges to see different parts of the Rainforest, visit another tree or reach a slide to go down to the Forest Floor. Jump using a rope from the top floor onto a squishy mat.

In various spots of the Jungle Gym there are vines that you can swing on like monkeys. Under some vines are nets and fake rivers. Climb inside a tree or walk over a river. In different areas, you can put your hands against real-size animal handprints to compare yourself to Rainforest animals.

The Jungle Gym includes all STEM principles. The Jungle Gym is a scientific replica of the Rainforest. We incorporated science through the layers of the Rainforest, and included different animals from each area and textures in mystery boxes and displays of animal skins, birds, leaves, bark, insects, and plants.

You will hear what it sounds like in each area through recordings from the Rainforest that are broadcast through hidden speakers. You can use a computer to select a layer of the Rainforest and then choose an animal from that layer. Then watch a video of that animal in its natural habitat.

The fact of building the exhibit involves engineering. Visitors will choose their paths based on their interests, which is like building their own instructions.

Facts on the posters throughout the Jungle Gym include information about each layer, such as how tall trees are, how much light reaches the forest floor, number of species of animals, average height of each layer and other math-based information.

We got our inspiration from the frogs in our classroom. As we were thinking what we could do for our project, it suddenly hit us that we could do the Rainforest. We started our research with the layers of the Rainforest and moved on from there. A few weeks later, we got

Degus for our classroom. We researched if they came from the Rainforest, and learned they came from the Andes Mountains in Chile. We started trying to find other types of animals that live in the different parts of the Rainforest.

We chose a jungle gym because it is a fun way to teach. It is something that will attract visitors without being boring. We like that it is for all ages, because visitors could stay on the Forest Floor or go all the way up to the top. We like how you can choose different ways to go through the exhibit.

To get people to come back to our exhibit we would change based on the Rainforest's two seasons, a dry season and a wet season. The questions and facts, mystery boxes, and displays would be changed twice a year with the season.

Also, visitors do not have to take the same path every time. There are so many options for paths through the Jungle Gym that you will want to come back over and over. You can learn more because the questions and facts are different in each area. You don't have to go to every layer every time you visit. And, you could come back another time to visit a different area or take a different path.

Interactive Exhibit Engagement

Our exhibit is a Jungle Gym, which is very interactive. It includes trees, bridges, vines, poles, ladders, nets, monkey bars and slides to interact with through climbing, jumping, sliding and getting into the natural habitat of an animal in a Rainforest. The mystery boxes allow visitors to use their senses to touch, see, hear and smell the animals, insects, plants, trees and other parts of the Rainforest. There are multiple areas to investigate, test and make observations on each layer of the Jungle Gym.

You will go on a learning adventure as you travel through the Jungle Gym. Once you start climbing, you will want to keep going. If you went through the Jungle Gym without reading or touching anything, it would take longer than three minutes. When a visitor begins exploring they won't be able to stop. As a visitors travel up or down the Rainforest layers, they will find how the layers will interact and depend on each other.

Visitors of all ages will enjoy the Rainforest Jungle Gym. It gives every visitor something new to look at on each level. The jumping and climbing may appeal more to children, while adults will be able to read posters and interact with mystery boxes. The exhibit is designed so adults can climb through it without getting stuck. The Forest Floor is perfect for the youngest visitors and they can do the reach-and-feel boxes, go inside a tree trunk, or walk or crawl over a bridge.

The learning areas will be designed for school-age and older visitors because of the words. Younger visitors can also look at the pictures on the posters. The sounds and sights are for all ages, as is the touch-and-feel areas.

Student Involvement:

We looked at other science museums online and visited Science City as a group before we chose our ideas. This helped us because we knew what was already at Science City, and we could grow on that and figure out something new to add to it. As we walked through Science City this summer, we noticed exhibits were no longer working and some of the exhibits weren't

being used anymore. This gave us ideas to make something that would not get old and that you could do different things each time you visited.

Our research included Internet sites that had Rainforest ideas. We looked at lesson plans about the Rainforest. We looked for ways it touched on science and math, and used that information to figure out our ideas. We searched for interesting facts about the Rainforest. In fourth grade, one of us was Jane Goodall for a wax museum project, and researched monkeys and their habitat. We used that information to start our project. The lifecycle of the frog exhibit idea, which was not used, included information. We used different non-fiction books and a realistic fiction novel. Every team member had knowledge of the Rainforest, which helped.

There are many unreliable sites, and we found these while searching. So we used sites that had information that supported our big idea. We looked for the same information on several sites to know it was true. Some of the sites we used to research facts included Caltech University, PBS, The Nature Conservancy and Mongabay. To research STEM principles, we used sites like Teach-Nology. And to research costs, we used sites such as Smart Playgrounds.

<http://www.srl.caltech.edu/personnel/krubal/rainforest/Edit560s6/www/whlayers.html>
http://www.pbs.org/wnet/africa/explore/rainforest/rainforest_animals_lo.html
<http://www.nature.org/ourinitiatives/urgentissues/rainforests/rainforests-facts.xml>
<http://kids.mongabay.com/>
http://www.teach-nology.com/teachers/lesson_plans/science/biology/rain/
<http://www.smartplaygrounds.com/>

We had many ideas that we did not use. We had the idea of a fake pond with a waterfall. We thought about fake fish and frogs living in the pond. We worried about algae in the water.

We also considered the lifecycle of different animals that live in the Rainforest. One of the other ideas we had but threw out was having a whole area that was just about frogs. It included the anatomy, lifecycle, and different types of frogs that lived in the Rainforest. We decided we couldn't come up with all of the STEM principles for frogs.

Another idea was a ball pit. We didn't use it because we heard a story about a child who died in a ball pit. We wouldn't want anyone to die in our amazing exhibit. Our exhibit is really safe so we would never want that to happen. Some ideas were not used because we didn't have enough money.

To create our design and presentation we used computers, Microsoft Word, books, poster board, markers, research outlines, Google Sketchup and Microsoft Paint.

Constructability:

Our exhibit will remain safe because the ground is made of soft, bouncy materials that are designed for safety. Climbing areas will have nets underneath them and all bridges will have rails. There are also a lot of handrails for walking up and down stairs and ladders. There is a ramp for wheelchair access, which is a safety and accessibility feature. Most areas are visible from the Forest Floor, which means members of groups can find each other. All materials will be designed based on governmental guidelines for playgrounds. Displayed insects, animals and birds will be in protective materials. Hand sanitizer dispensers will be located throughout our exhibit.

Materials are chosen based on a 10-year lifecycle. We are using government approved equipment. The slides and trees are made out of heavy-duty plastic. The computers may have to be updated and replaced, as technology changes. The sound system is hidden, so visitors cannot mess with it. Animatronics animals will be away from visitors' reach. The bridges will be made out of plastic materials to avoid rotting. The trampolines may require regular maintenance. The reach-and-feel boxes will need to be replaced as they wear out. Since we are changing them twice a year with the seasons, this will reduce the maintenance and allow us to bring in new ones. We think this will be two or three times during the life of the exhibit. We included costs for that.

Materials List - approximately 30 x 30 foot area with four levels

- Computer on each level - \$2,000 each - **\$8,000** total
- Animatronics, 20 throughout Jungle Gym - \$1,000 each - **\$20,000** total
- Trees, three - \$35,000 each - **\$105,000**
- Nets, one large, **\$1,000**
- Mat for base floor - **\$7,000**
- Binoculars, 15 – \$25 each, **\$375** total
- Animal replicas, \$150 each, **\$1,200** total
- Insects, encased, 50 to 60, **\$2,000** total
- Railings, **\$1,500**
- Slides, **\$3,000**
- Pole, **\$2,000**
- Ladders and stairs, one for each level, \$1,000 each - **\$4,000** total
- Bridges, three, \$600 each - **\$1,800** total
- Ropes, 4 - \$300 each - **\$1,200** total
- Sound system - **\$4,000**
- Posters and boxes - **\$1,000**
- Trampoline, 2, \$1,000 each - **\$2,000** total
- Hand sanitizer dispensers, 12, **\$100** total
- Wheelchair accessible ramp, **\$10,000**
- Reach-and-feel boxes insides replacements, **\$3,000**
- Computer updates and replacements over 10 years, **\$5,000**

Total budget: \$173,175

