



Builders' Math Episode Descriptions

UNHAPPILY EVER AFTER (New) Math topic: Cut To Fit **Builders' Math**

Hacker, longing again for Wicked, devises a deliciously dreadful plan to impress her: He sneaks into Happily-Ever-Afterville, uncovers the Book of Unhappy Endings, releases them across the site and crowns himself king! Wicked, duly impressed, becomes his Queen and together they delight as unhappy endings unfold. To rescue the site, the CyberSquad must get the Book back from Hacker to recapture the unhappy endings, and seal it inside 3 nesting boxes with precisely fitting lids ... all before sundown! Of course, Hacker has destroyed the lids, but the kids enlist the carpentry skills of one of the Three Little Pigs. Can the team figure out how to cut new lids in time - or will this tale end *Unhappily* Ever After?

1-liner: As Hacker schemes to turn Happily-Ever-Afterville into *Unhappily*-Ever-Afterville, the CyberSquad must stop him by making precisely fitting lids for 3 nesting boxes.

For Real: Bianca Busts a Move

Bianca's going to be in a talent show, and she's getting a little help from her friends. Her friend Rodney is teaching her an awesome dance routine, and her other friend Robert is letting them rehearse in his apartment. But when Bianca struggles with Rodney's dance moves, she accidentally falls onto Robert's table, shattering it to pieces. In order to reconstruct the table's square top, Bianca and Rodney measure the table's dimensions. After creating a template that doesn't fit properly, they learn that they need to use square corners to create the correct shape.

Math Message: When you need to copy and cut a simple shape to fit something you are building, you can use that shape's dimensions and other properties to copy and cut a new shape that matches your shape exactly.

ESCAPE FROM MERLIN'S MAZE (New) Math topic: Lever Fulcrum **Builders' Math**

On the prowl for a new power source, Hacker descends on Frogsnorts School of Sorcery. His scheme? To steal Professor Stumblesnore's wand and harness its

awesome magic to energize himself. Hacker's first task is to get star student Shari Spotter out of his way. He entraps Shari in Merlin's Maze by blocking her path with a series of heavy stone slabs. The CyberSquad learns of Shari's plight, but the slabs that block her escape are too heavy to move unaided. In their rescue mission, the kids experiment with levers and discover a proportional rule: Multiply the length of your lever and you will similarly multiply the weight you can lift. They free Shari, but not in time: Hacker has been successful and stolen Stumblesnore's magic! Is Shari's magic powerful enough to defeat him?

1-liner: Returning to the famous Frogsnorts School of Sorcery, our cyberheroes race to release Shari Spotter from Hacker's trap before Hacker wreaks havoc with Stumblesnore's magic.

For Real: Bianca's Ups and Downs

While playing on a seesaw with her niece, Bianca learns that the seesaw is a machine consisting of a lever and fulcrum, which allows a light person to lift a heavier person up in the air. Later, when Bianca gets a job cleaning up the park, she encounters a heavy stone that she can't move. Remembering the seesaw, she gets the idea to use a broom as a lever, and is able to lift the heavy stone with ease. In another flash of inspiration, she starts a contest, challenging kids in the park with a sign that reads "If you can't lift this rock, you win a prize!"

Math Message: When you need to lift something heavy, put one end of a lever under it with the fulcrum close to it and push down on the other end to lift it up.

STEP BY STEP (New) Math topic: Multi-Step Problem Solving *Builders' Math*

In the company of the ghostly pirate Ivanka, the elusive Doctor Marbles is back, and this time he's discovered a powerful cybermineral he can use to help Motherboard. Located deep inside a volcano on the cybersite Corsario, this "Magmalux" is strong enough to override the virus Hacker inflicted on the beloved Cyberspace ruler. Unfortunately, Hacker is on to Marbles and traps him on Skull Island so he can retrieve the Magmalux for his own evil purpose. Enter the CyberSquad: Digit tracks Hacker while the kids solve another problem: how to rescue Marbles! Hacker has destroyed the bridge to Skull Island, and the water surrounding it is infested with electric eels. Can they build a new bridge—with just an old sign to work with—and get to the volcano in time to stop Hacker?

1-liner: One step at a time, the kids calculate, measure and build their way across electric-eel infested waters to rescue Doctor Marbles—and Motherboard—from Hacker's scheming devices.

For Real: Penned In

Harley convinces Harry to help him put up a fence for their grandmother, but runs off as soon as Harry arrives - leaving Harry to do most of the work. With no instructions other than to put up the fence and make it a rectangle, Harry must figure out how to do so with different lengths of fence. He breaks the problem down, adds up different combinations of fence lengths, and draws a diagram to figure out which pieces go where. He succeeds in putting up a rectangular fence on his own, but then discovers Harley neglected to mention that his grandmother wanted a gate in the fence, too!

EUREEKA Math Topic: 2D & 3D Geometry **Builders' Math**

Pursued by Hacker, Digit lands on cybersite Eureka, where his mission is to find Professor Archimedes – the maker of the encryptor chip, a unique computer chip that can fix Motherboard. But Archimedes is nowhere to be found – only a pile of 2-dimensional rods where his chip factory should be. The kids arrive to help, and discover that by linking the 2-dimensional rods together into certain geometrical patterns they create a surprising 3-dimensional shape that leads directly to unraveling the mystery of Archimedes' strange disappearance.

For Real: All Dolled Up

Harry orders the perfect present for his sister -- a two-story dollhouse with six rooms! However, what comes in the mail is a thin, flat box with two-dimensional pieces of cardboard inside! Join in the fun as Harry transforms the flat pieces of the house into a roomy place to play.

Math Message: When you join two-dimensional geometrical shapes together, it is possible to create three-dimensional objects.

A TIKIVILLE TURKEY DAY Math Topic: Patterns in Nature **Builders' Math**

Hacker steals the legendary Egg of Benedicta - and the lush landscape of Tikiville wilts and turns brown. The spirit of the Tikians is crushed and Creech is in big trouble unless the CyberSquad can help! When their attempt to recover the Egg from Hacker fails, they hatch a new plan to replace the Egg. By studying patterns in nature, can they recreate the nest and restore peace and harmony to Tikiville?

For Real: Bianca Learns to Nurture Nature

Bianca is guilty of herbicide - she kills every plant she owns! She can't figure out why, and decides to seek professional advice at the New York Botanical

Garden. A helpful plant expert shows her some patterns in plants, including bilateral and rotational symmetry, before discovering the pattern that has been killing Bianca's plants. By watering them every day, Bianca has been over-watering the plants, causing the roots to rot and the plants to die. If she changes her pattern and waters her plants less frequently, Bianca might just be able to have a green thumb.

Math concept: When you look closely at things in the natural world, you can observe patterns, like symmetry.