

# GADGETS & GIZMOS

## LEARNING OUTCOMES

Having completed this badge members will:

- demonstrate basic understanding of design and construction;
- identify appropriate tools used to design and create an article and demonstrate competency in their use;
- draw up construction plans for a useful article;
- complete the construction of the article.

## BADGE REQUIREMENTS

1. Sketch two or three designs for a useful article.
  2. Draw a set of plans for the article to scale.
  3. Identify the tools and materials required to construct the article.
  4. Construct the article.
  5. Show that the article works correctly.
- 14+** Write full instructions that can easily be followed to construct a similar model.





# Teaching ideas

There aren't any teaching ideas as such. Instead members will complete the badge requirements as they design and construct the article.

You may seek the advice or assistance of a manual arts teacher or other craftsman.

Members are to design and create the article from its inception to its completion. That is, they will need to design plans using exact specifications or to a scale, use tools correctly in the construction of the article, adhere to safety measures as they work and ensure that the article works.

As you teach, be sure members know how to use tools correctly and the correct safety measures including safety clothing (e.g. goggles).

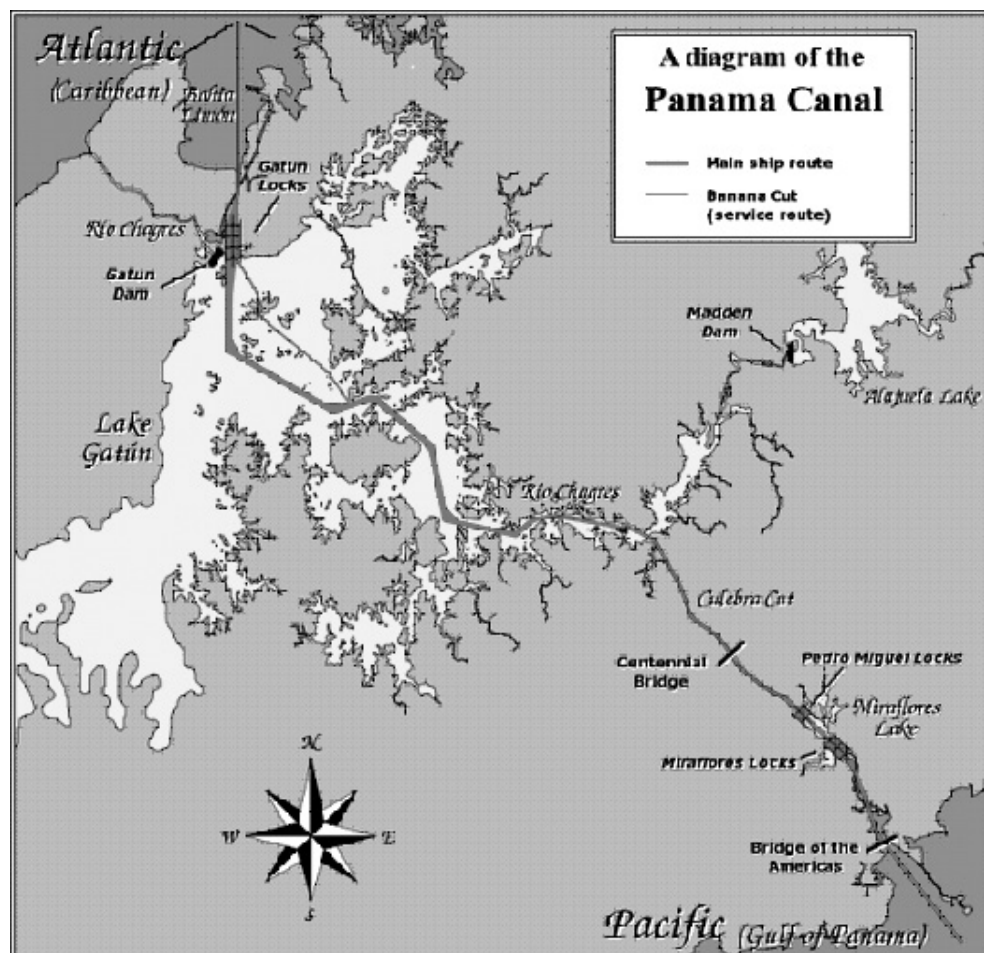
Some suggested articles to build are: go-kart, letterbox, bird feeder, fountain, windmill, weather vane, steam boat.

To pass the badge members must present plans of their design and an article that won't fall apart and works as it should.

This could be a group or individual project, depending on the article/s chosen and available materials. Materials could be obtained from recycle centres or off-cuts from hardware stores.

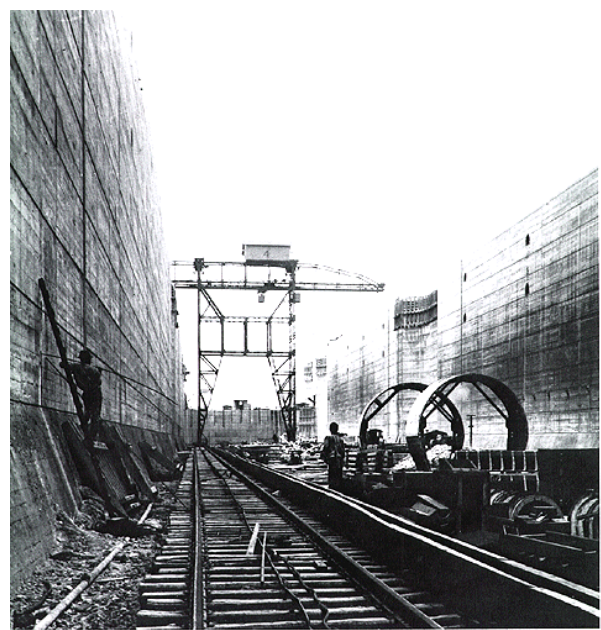
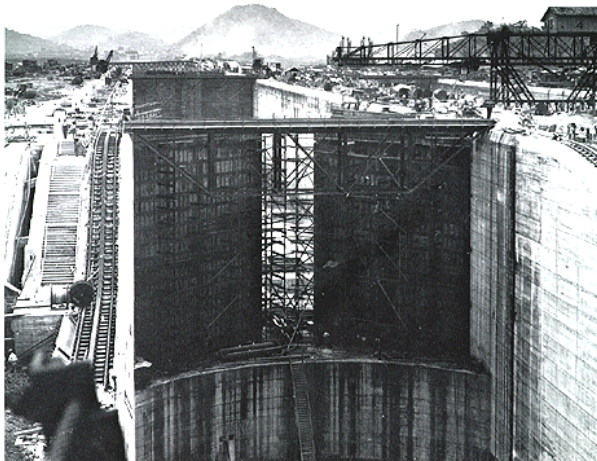
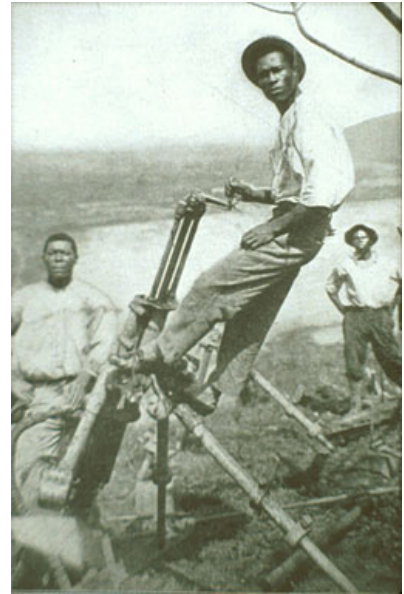
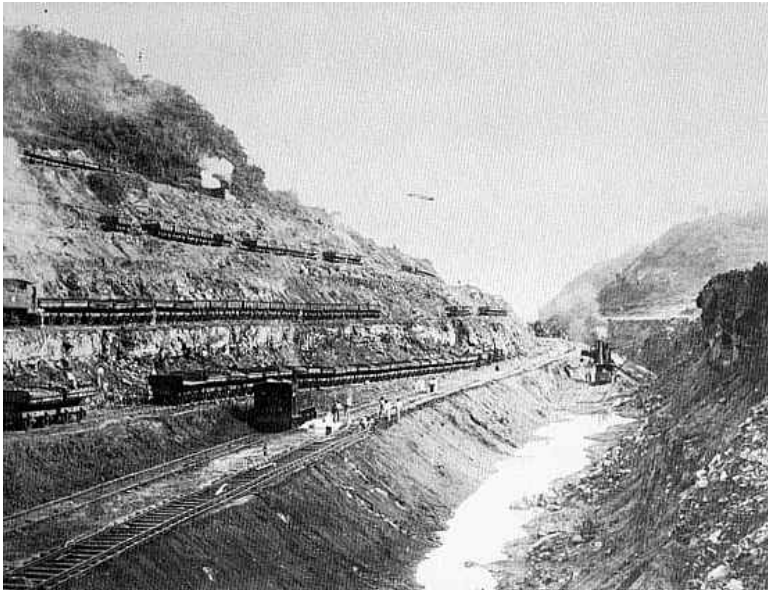
**14+** Members need only write a step by step guide. There is no requirement for someone else to construct the article using this guide.

# Leader's resource 1



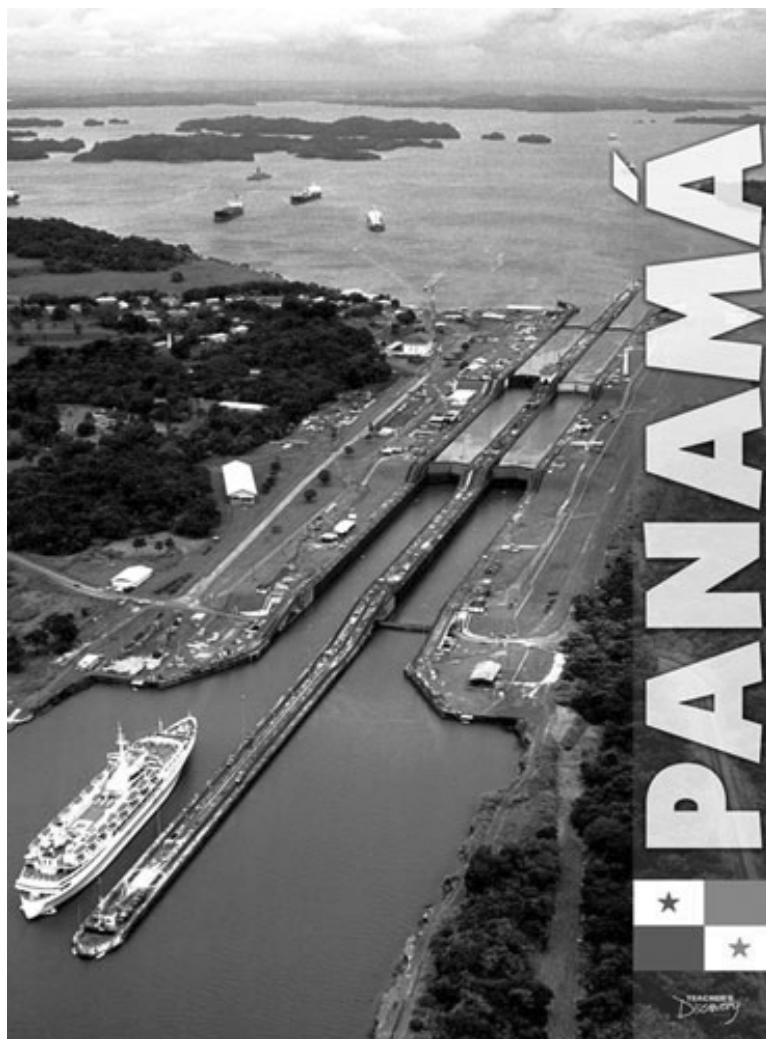


# Leader's resource 2





# Leader's resource 3



# **Leader's resource 4**

GOT ANY RIVERS

**Got any rivers you  
think are uncrossable?**

**Got any mountains  
you can't tunnel  
through?**

**God specialises  
in things thought  
impossible,**

**for He can do what no  
other pow'r can do.**

# Devotional ideas



- 1. Title:** A great construction  
**Bible:** Matthew 19:26  
**Thought:** Man can construct mighty works but God created the whole universe  
**Supplies:** Large map or globe of the world, maps and pictures of the Panama Canal on Leader's Resource 1, 2 and 3; words of song 'Got any Rivers' on Leader's Resource 4

Point out to the group the two continents of North and South America and how they are joined by what looks like a slim piece of land.

In the days when there was no air travel people travelled by ship. Engineers thought it would be great if they could dig a canal through the narrowest part of the land between the two Americas so that ships could sail through it.

This would cut weeks off the sailing trip and also make the journey much safer. It was a horrible and dangerous journey because strong Antarctic winds blew ships off course and pummelled the boats as they turned around Cape Horn toward Australia or New Zealand.

Several times the project was begun and stopped. It seemed it would never happen and then it was tried again. Hundreds of workers died from malaria and other diseases because of the harsh swampy area where mosquitoes bred in their thousands and carried the disease from man to man. But the men were determined to finish the job.

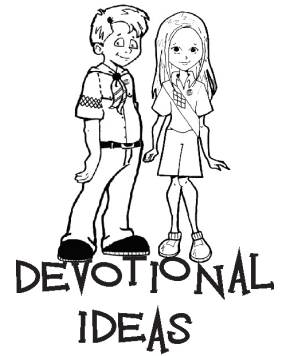
The canal would be 80 kilometres long from the Atlantic to the Pacific. They had to construct the largest earth dam ever built, design massive canal locks and hang the largest gates ever swung as well as overcome huge environmental problems. Altogether it took 10 years to build. The men had a chorus that they sang as they built the mighty Panama Canal, tunnelling through mountains and crossing rivers. The song talked about uncrossable rivers and mountains that couldn't be tunnelled through. 'We can do just what no other men can do', they sang. Singing as they pulled on the ropes helped to keep them in time and so work better. At last the job was completed.

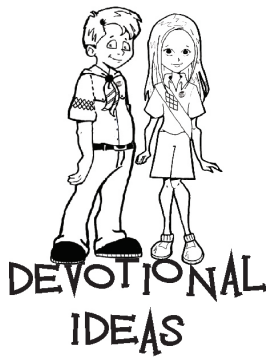
One day a Christian looking at the words of the song realised they were more true about God than any man. Although the men that built the canal were powerful and overcame great obstacles God was much more powerful. Just a few of the words were changed and this is how it read.

*(Hold up the enlarged copy of the words of the song and invite the group to read it with you.)*

Got any rivers you think are uncrossable?  
Got any mountains you can't tunnel through?  
God specialises in things thought impossible,  
He can do just what no other power can do.

Have a member read Matthew 19:26, *But for God everything is possible.* Never forget that God is willing and able to help you get through some of the problems that crop up in your life.





# Devotional ideas



## 2. Title:

Wonderfully made

## Bible:

Psalms 139

## Thought:

God's constructions are awesome

## Supplies:

picture of the universe, picture of skeleton or pictures of other parts of the body

Ask the members if anyone had any problems making their working article. (Remember to be encouraging. Perhaps identify some of the minor problems that may have occurred during the badge work.) Maybe someone cut the wood too short, or someone almost knocked the nearly completed 'work of art' over, or had trouble following the plans. Some of us are better at construction work than others.

There is one person who is *the* master designer and builder – God. He created the world we live in, and His plans were so perfect that we can follow them and know where the sun or the stars will be in the sky at any moment in the future. It is because of God's masterful design of the creation of human brains that we can design, build and work a computer, fly aeroplanes and safely land a spaceship. God is the master craftsman when it comes to making people.

Ask a member to read Psalm 139:13 - 16. Verse 14 says, '*I praise You because of the wonderful way You made me.*' (CEV)

Our body is an amazing machine. Ask the group to follow some simple instructions, e.g. hop on one leg, scratch their nose, smile at the person next to them. Did you have to think about where you would find your nose, or which muscles help you smile? No, most of us simply do those things with little really thinking about it.

Have you ever thought about how breathing brings oxygen to your blood, which travels throughout your body delivering that oxygen to other cells in your body? It's amazing!

Have you had an accident or a scratch and noticed how your body has healed? What about getting new teeth when your baby teeth fell out? Did you organise that? It all happens under God's amazing construction plan. It's no wonder that the psalmist wrote that we are wonderfully made.

Let's thank God for the awesome way our body works. If your group will pray aloud ask them each to pray a sentence of thanks mentioning one way the body works (e.g. sight, hearing, strength, muscles). Alternatively pray Psalm 139:13 - 16 together.