**THE ADVENTURE:**
Have you ever wanted to design your own roller coaster? Build the marble roller coaster of your dreams out of paper and tape! Make sure the ball can make it around each turn without flying out!

**PLAN:**
- Where will you do this Adventure? Do you have a safe place to store your roller coasters?
- How big will you make your roller coaster? What are the dimensions of the base?
- How will you make sure your marble will stay in motion on its own all the way to the end of your roller coaster?
- How many different roller coaster features will you include?
- What do you need to know to build these elements?
- Do you want to make this adventure a design competition? What will be the rules of your competition?
- Will there be a limit on the amount of material each group is allowed to use?
- Do you want to include other recyclable paper materials?
- How will you make your groups?

**DO:**
- In your group, plan out your roller coaster. Draw up a design, and be sure to include some of the dimensions. Get creative! The sky is the limit.
- Build and explore various roller coaster features. How do they affect the motion of the marble?
- Build your roller coaster, starting from the bottom and working your way to the top.
- Use support columns, built from paper, to keep your roller coaster standing.
- Make sure all folds are sharply creased.
- Test your roller coaster as you go to be sure each element works the way it should.

**REVIEW:**
- What do you know now that you did not know before?
- How did you work together to build your roller coaster?
- What were your greatest building challenges? How did you solve those problems?
- How did you use the roller coaster to control the motion of your marble? What forces do you think were at play?
- What else could you build using paper?
- What did you like about this adventure? What did you not like? How would you do this adventure differently?
PAPER ROLLER COASTER

MATERIALS:
• Transparent adhesive tape
• Card stock (110 is best)
• Foam core board for the base
• Scissors
• Element templates (optional)
• Marbles

ONLINE RESOURCES:
• A paper roller coaster lab activity
• Paper Roller Coasters Gallery
• A 5.13 m tall paper roller coaster
• How roller coasters work
• How Roller Coasters Work

SAFETY TIP:
• Be prepared for paper cuts. Have a small first aid kit on hand.