

# brainSTEM

**Welcome to brainSTEM**, a game in which teams face challenges in science, technology, engineering and mathematics (STEM). The brainSTEM game is based on the television series **SciGirls**, but it is not only for girls! The game, created with the national science and mathematics standards in mind, is intended to supplement your classroom content and generate excitement among all students about STEM. It can be used as an extension of your science time and is perfect for an afterschool situation, science club or under select classroom conditions such as centers-based activities.

## About SciGirls

**SciGirls** began airing nationwide on PBS in February 2010 (check local listings). In each episode, girls team up with a mentor to conduct an inquiry-based science investigation or engineering project. The entire process helps Izzie, the animated star of **SciGirls**, solve a problem with her best friend Jake.

**SciGirls** integrates its companion website into the TV series like never before. At the beginning of each episode, viewers follow Izzie onto the website as she picks a group of SciGirls that she thinks can help her conquer her own challenge. She launches the video and follows the live-action story, learning as she goes. Viewers can visit the website themselves to create their own profile pages and upload their own science projects.

The premise behind **SciGirls** is to bridge the gender gap in STEM fields by encouraging research-based strategies to help engage girls. But these strategies do not exclude boys and, in fact, are beneficial to all learners. The **SciGirls** game, brainSTEM, encourages collaboration and communication among teammates. The game also encourages kids to learn and express themselves in a variety of ways. The goal is to motivate, excite and inspire students to explore STEM in their everyday lives, coursework and eventually their careers! Want to know more about the **SciGirls** strategies? Visit the PBS Teachers portal at [www.pbs.org/teachers/scigirls](http://www.pbs.org/teachers/scigirls).

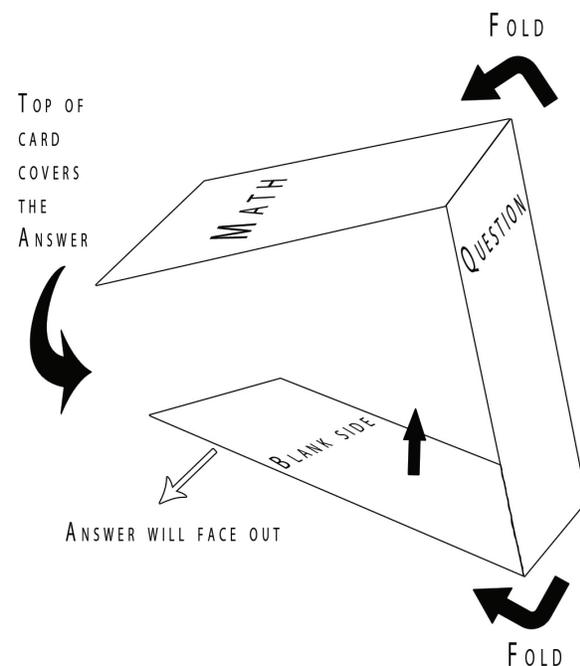
## SciGirls Resources

SciGirls episodes can be streamed on the SciGirls website at [www.pbskids.org/scigirls](http://www.pbskids.org/scigirls). The website includes hands-on activities and project pages that showcase investigations done by kids. Create your own page with your class!

Additional board games are available. Please send your request, including name, address and quantity desired to [scigirls@tpt.org](mailto:scigirls@tpt.org).

## Game Setup

Question cards can be downloaded from [www.pbs.org/teachers/scigirls](http://www.pbs.org/teachers/scigirls) and are available for both the elementary (grades 3–5) and middle school (grades 6–8) levels. Mix and match questions to accommodate the individual needs of your students. Blank cards are also available for you to add your own content. The cards can be printed one-sided on regular 8.5" × 11" paper in black and white. The paper should be cut lengthwise and folded so that the category is on one side, the question is on the flipside and the answer is hidden on the interior. (See image.)



There are several different question types. The directions for each question are indicated on the card. Review each question type with your students prior to game play and demonstrate how to use the tri-fold cards. Although an adult is not required to run the entire game, it is helpful for an adult to circulate from group to group throughout game play. Please note that some questions do not have defined answers. In this case, a safe environment for discussion is required so that all children have a voice and can question freely. In the end, the teams must come to a resolution to continue game play.

This game requires a minimum of two teams, with two to three players per team. The game will take approximately 45 minutes to play. (More teams in the mix means the game plays longer. We recommend no more than four teams per game.)

To begin, place the cards on the appropriate spots on the board. Then, place the die, timer, player markers, scratch paper, pencils and toolkit on the table.

## You'll Need

- SCIENCE, TECHNOLOGY, ENGINEERING and MATH question cards
- GENIUS cards (special bonuses that are earned by winning ALL PLAY challenges)
- A toolkit of supplies for each game board to complete the ENGINEERING Make It challenges (see itemized list below)
- Player game pieces (i.e., buttons, coins, paperclips, etc.)
- A single die
- Scratch paper and pencils
- Stopwatch or alternative timer

## Toolkit Preparation

Each game board requires a toolkit for the ENGINEERING Make It Challenges. The quantity of each item is not crucial, but the list here outlines the minimum requirements for a game with two teams of two to three players each. The more players, the more of each material you will need. Feel free to add your own unique supplies!

- Notebook or computer paper (15 sheets)
- Newspaper (4 sheets)
- A heavier stock paper (note cards, cardstock) or paper/plastic plates (2)
- Transparent tape (1 roll)
- Masking tape (1 roll)
- Scissors (2 pair)
- Paper clips (20 small, 10 large)
- At least 2 items from this list: plastic wrap, tissue, tissue paper, napkins, paper towels, handkerchief
- Thread (1 spool)
- Textbooks of approximately equal size (4)
- Pencils (2)
- Balloons (2)
- Ruler or tape measure (1)
- Straws (2)
- Pennies or metal washers (for weights)
- Other items (not required): old AA or AAA batteries, cotton swabs, string, rubber bands, aluminum foil, golf pencils