

# Activity 1:



**PUT A LEGO MINI-FIGURE  
TOGETHER AND ADD 2-4  
PIECES TO IT TO SHOW  
SOMETHING ABOUT WHAT  
YOU LIKE TO DO IN YOUR  
SPARE TIME.**

# Class Full of “Block-heads”



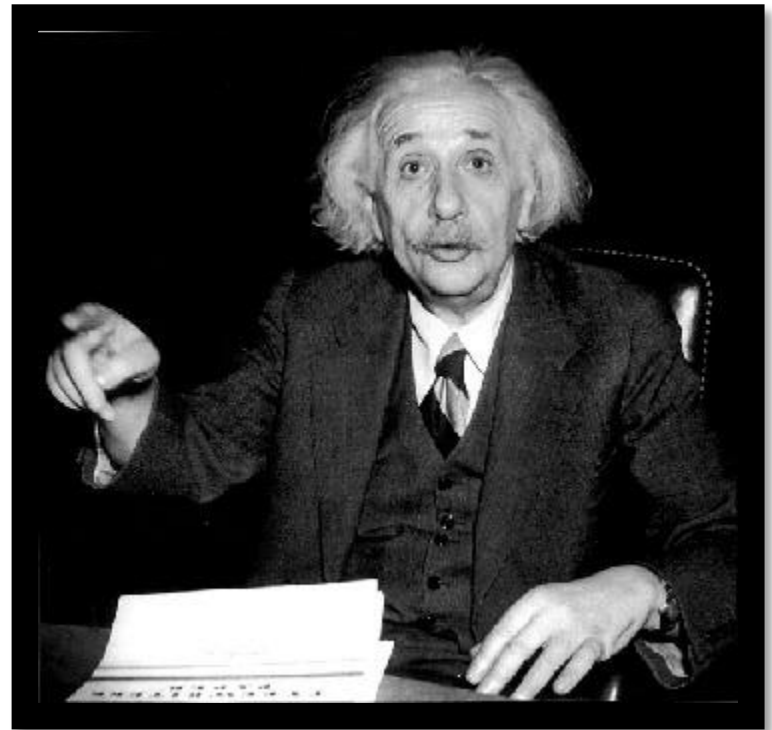
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## Activity 2:



**OPEN THE BAGGIE OF  
LEGOS – EXPLORE,  
CREATE, BUILD, DO  
WHATEVER YOU WANT  
WITH THE LEGOS**

# S.T.E.M. is all about Innovation



# Famous American Inventions



- Lightning Rod, 1752
- Submarines, 1776, 1898
- Steam Boat, 1807
- Electro-magnetic Motor, 1830
- Sewing Machine, 1833
- Revolver, 1836
- False Teeth, 1845
- Passenger Elevator, 1857
- Burglar Alarm, 1858
- Roller Skates, 1863
- Barbed Wire, 1867
- Hearing Aid, 1880
- Kodak Camera, 1888
- Dishwasher, 1889
- Escalator, 1891
- Zipper, 1893
- Player Piano, 1897
- Air Conditioning, 1902
- Difibrillator, 1932
- Nylon, 1938
- Barcodes, 1974

# Famous Minnesota Inventions



- Tonka Trucks
- Indoor Shopping Malls [Southdale]
- Honey Crisp Apples
- Music Stand
- Flash Freezing [Green Giant Foods]
- Rollerblades
- Water Skis
- Breathe Right Air Strips
- Kitty Litter

- GPS
- Snowmobiles
- Stapler
- Nut Goodie Candy Bar
- Retractable Seat Belts
- Sandpaper
- Scotch Guard
- Skyways
- Scotch Tape
- Bundt Pan
- Zubaz Pants

# Innovation



## Inventor's Playful Approach

- Exploratory - tinkering/experimenting
- Pretend - visualizing/modeling
- Social - Brainstorming/Teamwork
- Problem - Problem Solving

## Child's Inventive Approach

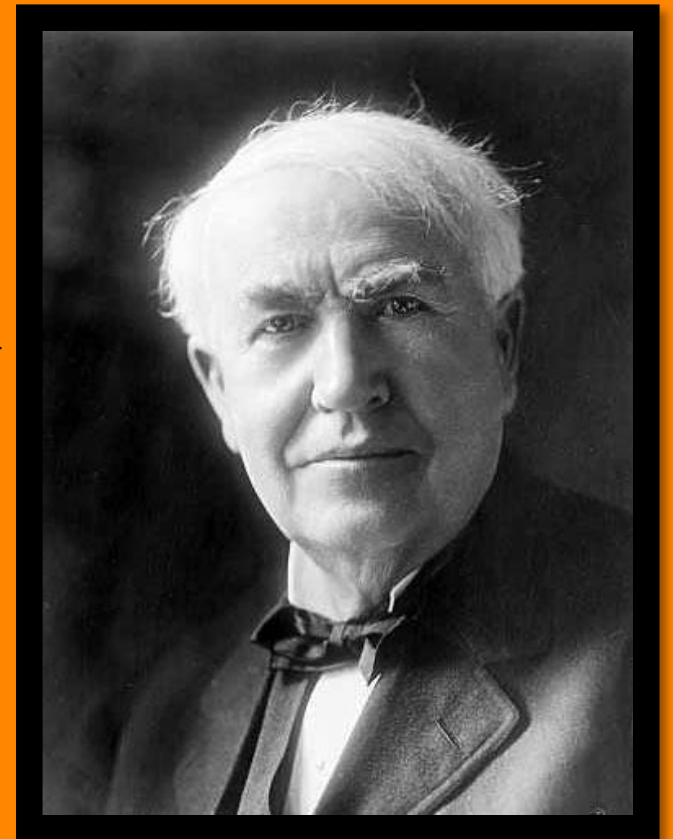
- Exploratory - exploring with senses
- Pretend - imagining/pretending
- Social - social play/communication
- Problem - play with puzzles and patterns

*[From - MN Historical Society]*

# Inventor's Playful Approach



- Exploratory - tinkering/experimenting
- Pretend - visualizing/modeling
- Social - Brainstorming/Teamwork
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## Child's Inventive Approach

- Exploratory - exploring with senses





## Child's Inventive Approach

- Pretend - imagining/pretending





## Child's Inventive Approach

- Social - social play/communication



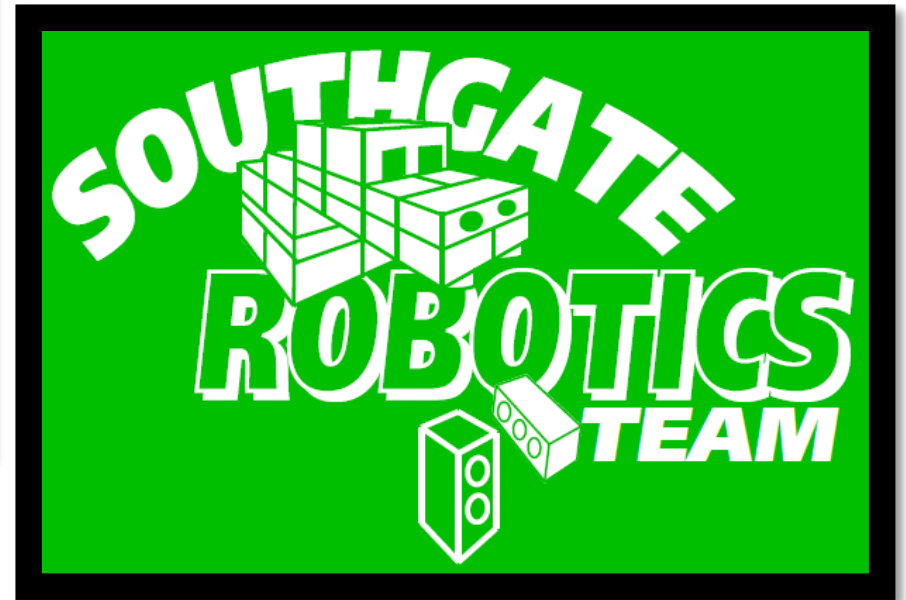
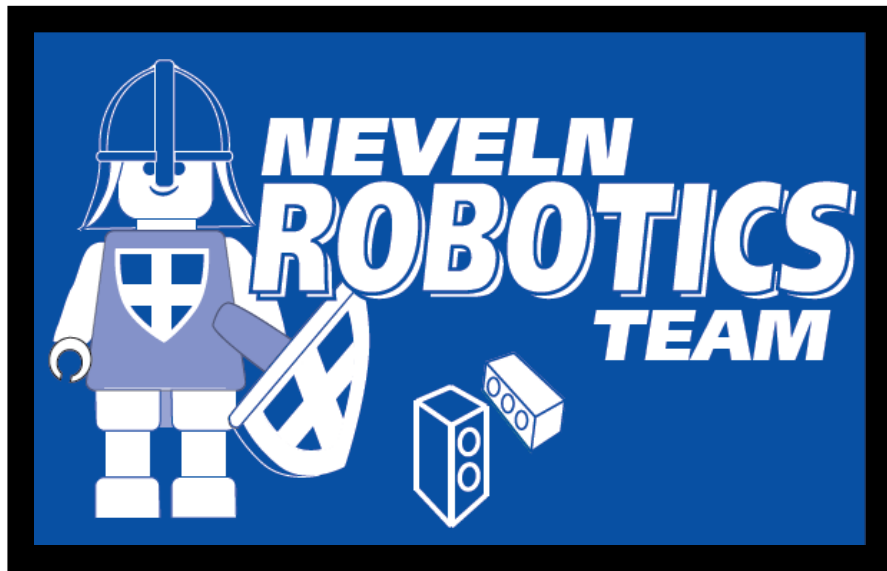


## Child's Inventive Approach

- Problem - play with puzzles and patterns



# 'Lego League' and 'Lego Robotics'



# What is F.I.R.S.T.???



- F – For the
- I – Inspiration and
- R – Recognition of
- S – Science and
- T – Technology



- *“To transform our culture by creating a world where Science and Technology are celebrated and where young people dream of becoming Science and Technology leaders.”*

# What is F.I.R.S.T.???

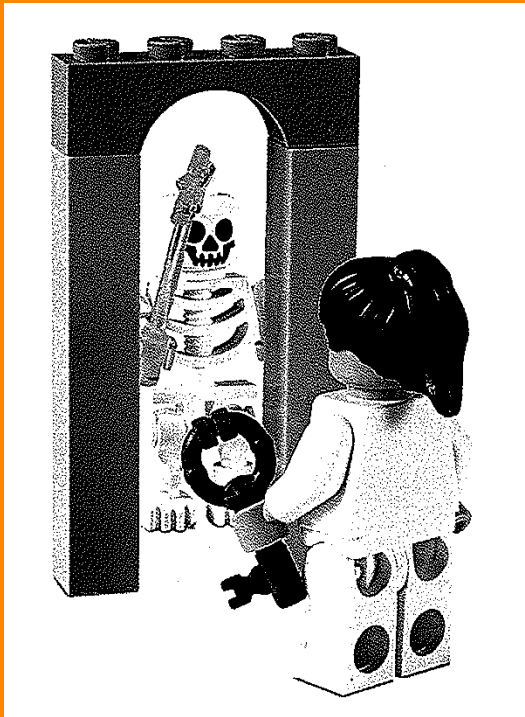




# Social / Emotional Growth with Legos



- Look at the pictures.



- How does it make you feel?

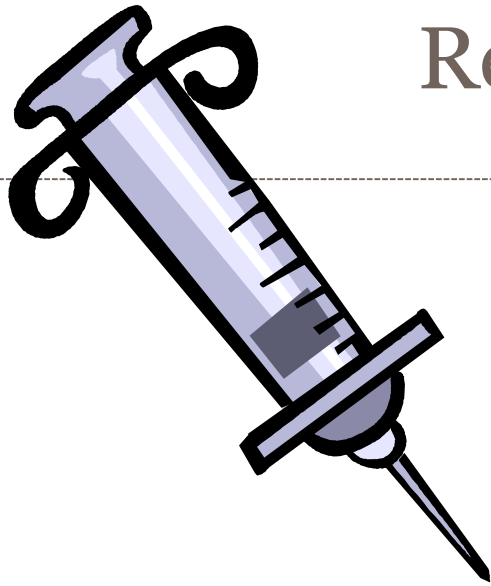


## Activity 3:



**CREATE A MINI-  
FIGURE THAT  
SHOWS HOW YOU  
FEEL TODAY.**

# Real World Problems



# Curricular Ties:



**READING**  
**WRITING**  
**LISTENING**  
**TALKING**  
**TECHNOLOGY**  
**VISUAL ART**

# The Research



# Presenting Solutions

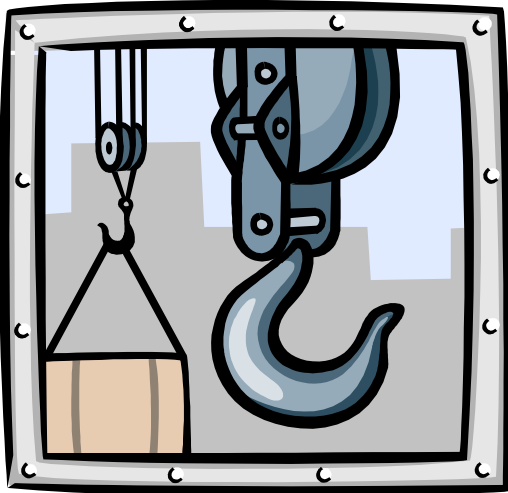
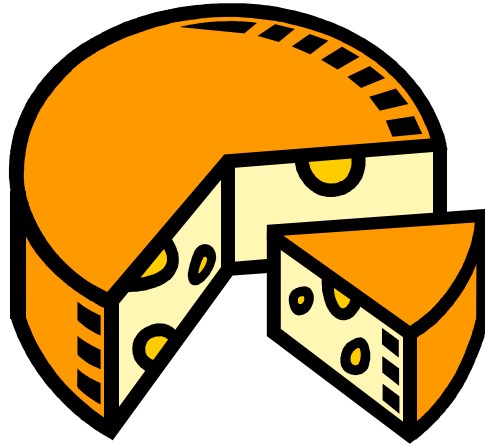


Curricular Ties:



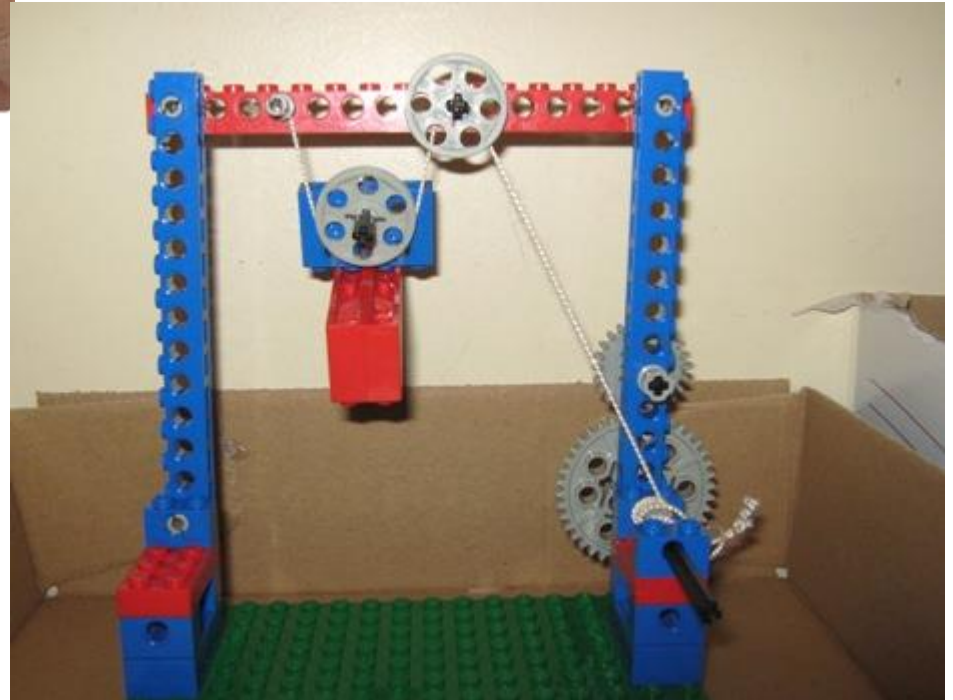
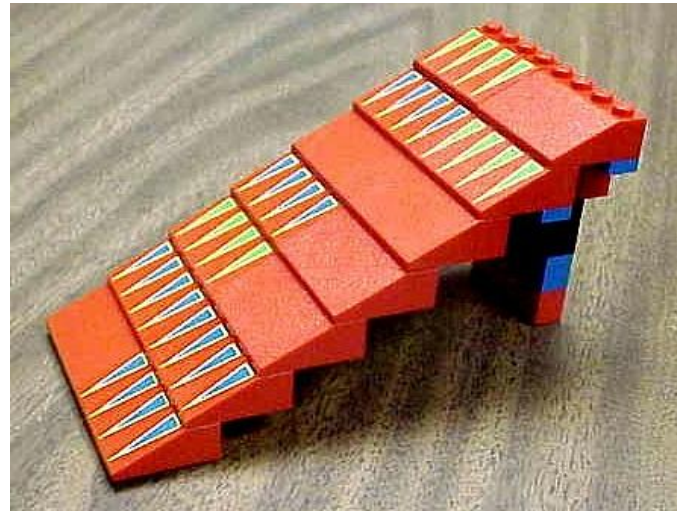
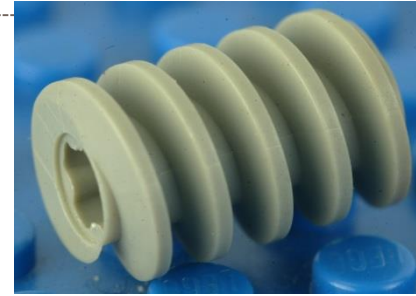
**SCIENCE**  
**TECHNOLOGY**  
**ENGINEERING**  
**TECHNOLOGY**

# Simple Machines



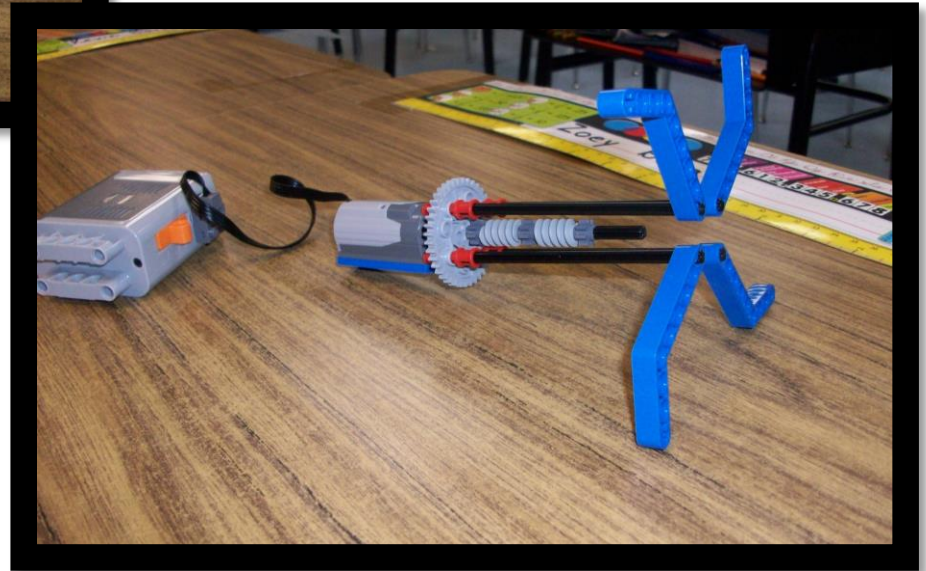
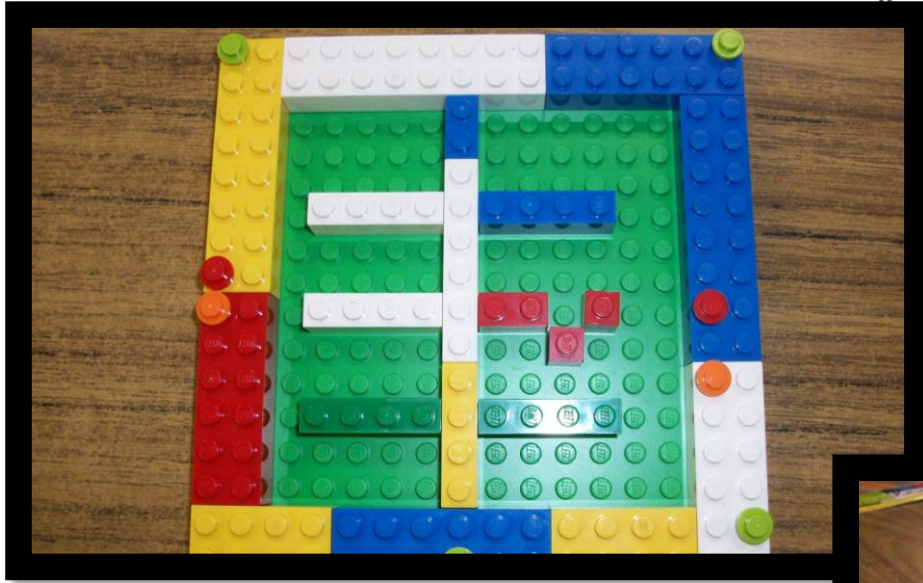


# Simple Machine & Legos

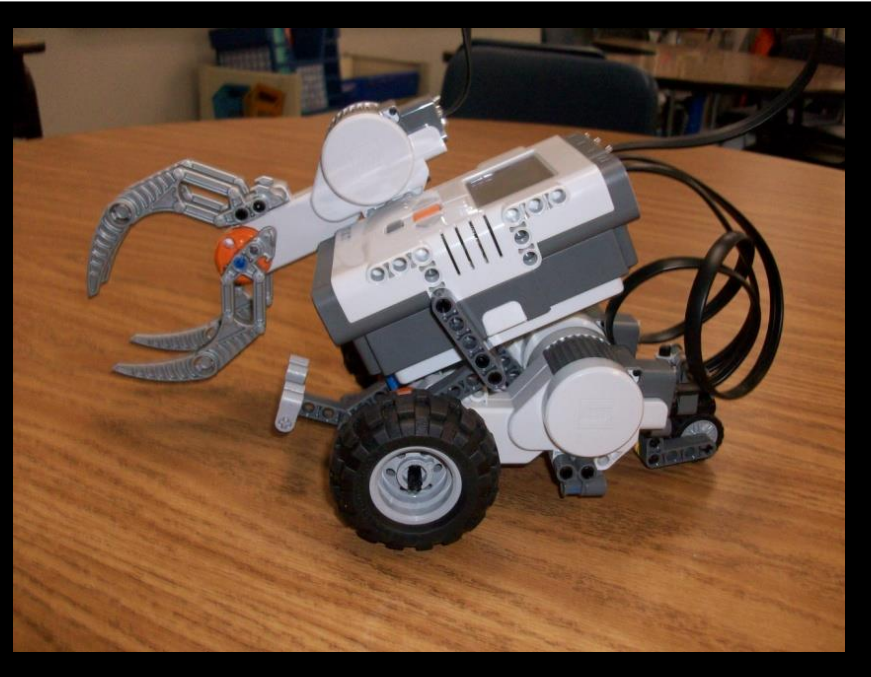




# The Building



# The Building



# Daily Challenges



- Know LEGO Lingo

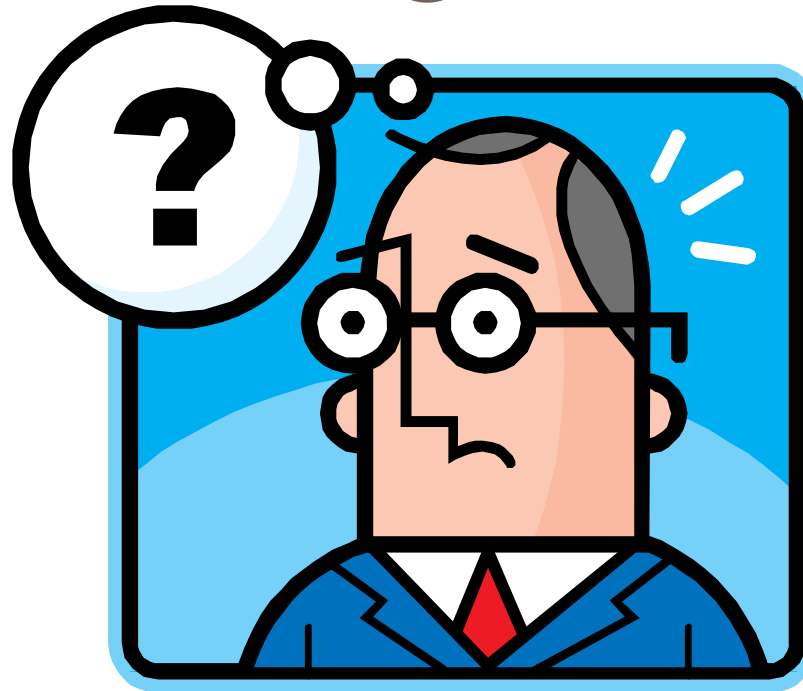
- <http://bestbirthdayideas.com/wp-content/uploads/2010/10/bingocards30.pdf>
- <http://www.bigdandme.com/2011/05/lego-bingo/>
- Play LEGO Pictionary
- Play LEGO Creat-ionary



- Building Challenges

- Bridges / Test them
- Something that moves when you blow on it
- Something that floats in water
- Wall that won't break when I roll a ball at it
- Car powered by a balloon
- Something that moves bricks from one side of the room to another

# How do I get involved?



# Resources



- <http://www.usfirst.org/>
- <http://www.usfirst.org/roboticsprograms/jr.fll>
- <http://www.usfirst.org/roboticsprograms/fll>
- <http://www.hightechkids.org>
  - [sarah@hightechkids.org](mailto:sarah@hightechkids.org)
  - [cheryl@hightechkids.org](mailto:cheryl@hightechkids.org)
- <http://www.legoeducation.us/>
- Regional FLL Robotics Competitions all over MN



# Costs



## Jr. FLL

- About \$150
- Base Kit, team registration, team access on website

## FLL

- About \$1,000
- Base Kits, NXT robot, field mat, mission pieces, team registration
- Local Competitions all over MN

*Find funds from local organizations, foundations, corporate sponsors, or school budget.*