3. Seesaw

Science
- Balancing forces
- Energy
- Levers
- Non-standard measuring
- Pivots

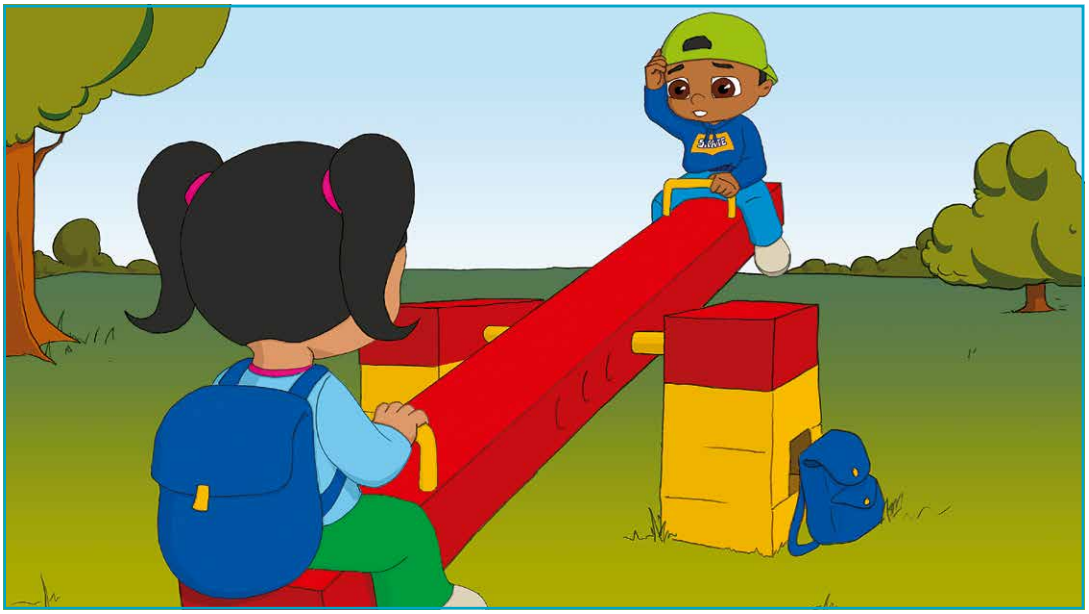
Design and Technology
- Assembling components
- Evaluating
- Game design

Vocabulary
- Balance
- Mass
- Position
- Weight

Connect

On their way home from school Sam and Sara stopped at the playground. Sam and Sara jumped onto the seesaw only to find out that something was different that day. There wasn't any going up and down. Sara was down and Sam was up. No matter how hard Sara pushed away from he ground she couldn't get herself up and Sam down, and they both wondered what was so different today from any other day.

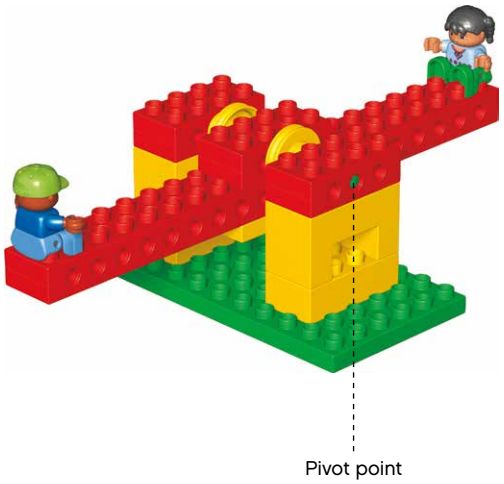
Can you help Sam and Sara build a seesaw that will balance?
Let's find out!

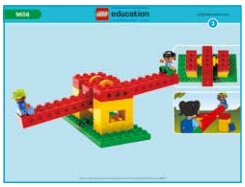


Construct

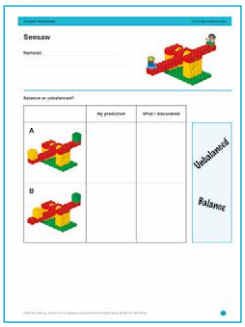
Build the seesaw using building instructions no. 3

- Be sure that it balances and moves up and down smoothly
- If it does not balance, check that the pivot position is correct
- If it does not move smoothly, check that the yellow pulley wheels are not rubbing against the fixed red bricks





Contemplate



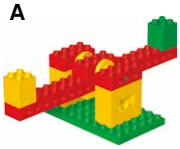
Balance or unbalanced?

When you add weight (2x2 bricks) to the seesaw it will either balance or tip to one of the two sides. Find out which seesaw will balance and which will be unbalanced.

First predict which seesaw will balance and which will be unbalanced.
Write down your predictions using the words on the worksheet.

Next, test the different brick positions.
Write down your findings using the words on the worksheet.

Balancing the seesaw depends on the size of the weight (mass) at each end and the distance of the weight from the pivot point.

	My Prediction	What I Discovered
A 		Balance
B 		Unbalanced

Have the students reflect on their tests by asking questions such as:

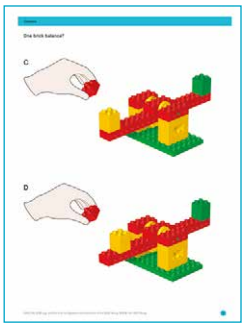
- What did you predict would happen and why?
- Describe what happened.
- Was this a fair test?
- Describe how the model works.

Continue

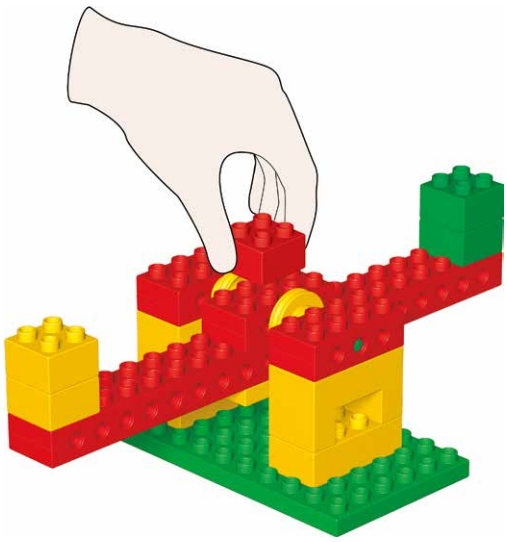
One brick balance?

First try to predict where to place the brick to make the seesaw balance.

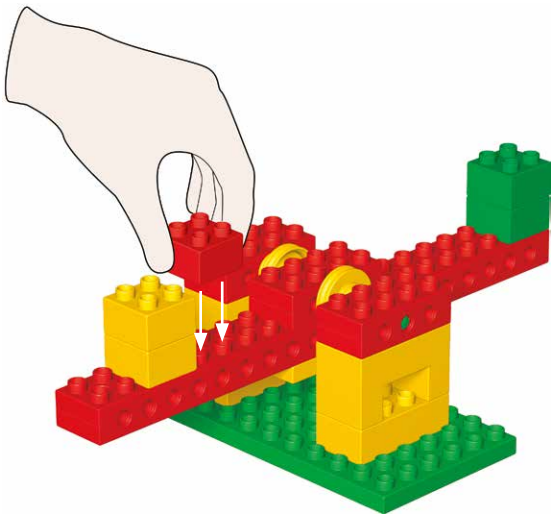
Next, test to see if what happens is what you have predicted.
On the worksheet, draw where to put the brick that will make the seesaw balance.



C



D



Seesaw

Class: _____ **Date:** _____

Performance and Learning Targets Linked to the Activity and the Eight Next Generation Science Practices Observe the suggested student behaviors while working with the activity. Either use the suggested Emerging (E), Developing (D), Proficient (P), Accomplished (A) proficiency level descriptions or use one relevant to your context.	**Name(s):**													
Student Performance Targets Linked to the Activity To what degree can the student…?														
Adequately build the seesaw model with help or independently using the Building Instruction (1, 2, 3, 6)														
Use the model to demonstrate understanding of terms and make predictions about cause and effect on balanced and unbalanced forces (1, 3, 4, 5)														
Meet or exceed expectations in the design of the seesaw based on directions of activity (E.g. Ability to balance, Has a functional pivot and a working pulley) (2)														
Make changes or create a new model design in order to create a more advanced model based on tests and data (2, 3, 4, 6)														
Use seesaw worksheets to record and analyze data collected from the model investigation (3, 4, 5)														
Selected Student Learning Targets Linked to the Practices To what degree can the student…?														
Ask simple to advanced questions based upon observations to make predictions (1, 3)														
Demonstrate ability to use fair testing of models and make adjustments based upon data (3, 4, 6)														
Communicate the meaning of the findings with others (E.g. orally, in drawing or writing) (4, 8)														
Follow a plan to define, carry out, test, evaluate and share a design task (2, 3, 4, 5, 6, 7, 8)														
Compare solutions with other groups and listen to the ideas of others (6, 7, 8)														
Optional Student Learning Targets														
Lesson Observational Notes:														