

**STEM**  
*sports*<sup>®</sup>

science • technology  
engineering • math • sports

**SOCCER**

Module 5.2

**Air Molecules in a Soccer Ball**

**GRADES 3<sup>rd</sup> – 5<sup>th</sup>**

MODULE  
**5.2**

GRADES  
**3-5**

## What Do You Need?

### Supplies Provided

Soccer Balls, Ball Pump  
and Pressure Gauge

### Materials Needed

Pencils and Notebooks  
or Drawing Paper  
Optional: Small Plastic  
Bags and Cotton Balls





## Test Your Knowledge

Have your students take this lesson's assessment prior to engaging by visiting: <https://stemsports.com/assessments/>. If you have limited digital capability, please email [Info@STEMSports.com](mailto:Info@STEMSports.com) to access the Assessment & Key.

# Engage

Why does a flat ball not move as easily as a ball full of air?



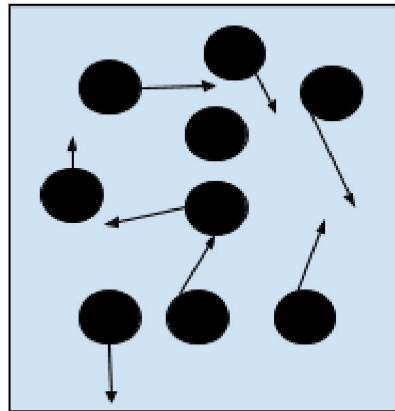
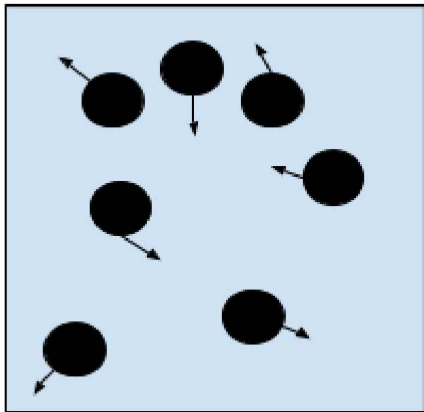
# Explore

What is in the flat ball? What is in the full ball? What makes each behave differently?



# Explain

Increasing amount of air →



Learn about the function, make up, and relationship of *molecules* inside a flat and full soccer ball.



## Elaborate

Complete an experiment that demonstrates the difference between a flat and inflated soccer ball.

# Evaluate

Based on your experimental findings, what is happening on the inside of the ball as more air molecules are added?





## What Did You Learn?

Have your students retake this lesson's assessment to effectively evaluate their comprehension by visiting:

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**Extend**

## **Challenge Yourself!**

Add the concept of *molecular motion* to your experiment.





# What is your Dream Job?

## STEM Jobs in Sports

- Sports Equipment Manufacturer
- Systems Engineer
- Quality Manager
- Material Scientist
- Materials Chemist



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