



**STEM**  
*sports*<sup>®</sup>

science • technology  
engineering • math • sports

## **VOLLEYBALL**

**Module 4.1**

**Calculating Total Force**

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





MODULE  
**4.1**



GRADES  
**3-5**

## What Do You Need?

### Supplies Provided

[Worksheets](#), Light Touch,  
Recreation Volleyballs and  
Radar Gun

### Materials Needed

Smartphone or Tablet and  
Pencils





## 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 do some serves in volleyball  
move faster than others?



# Explore

Conduct an informal experiment to determine how to increase the speed of a serve.

# Explain

Learn the importance of *acceleration* and *force* in volleyball, and how Newton's 2<sup>nd</sup> Law applies:  
 $M = FA$





## Elaborate

Conduct a controlled test and collect data to determine acceleration and force of each serve.

# Evaluate

How does a change in force affect a change in motion? Based on your data, use the [worksheet](#) to support your claim.





## What Did You Learn?

Have your students retake this lesson's assessment to effectively evaluate their comprehension 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.



**Extend**



## **Challenge Yourself!**

Design your own controlled experiment using other independent variables.





# What is your Dream Job?

## STEM Jobs in Sports

- Performance Coach
- Mechanical Engineer
- Videographer
- Systems Engineer
- Sports Statistical Analyst



To access Worksheet Keys, please visit [www.STEMSports.com/digitaltools](http://www.STEMSports.com/digitaltools)

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