

STEM
sports[®]

science • technology
engineering • math • sports

BASKETBALL

Module 4.1

Velocity and Acceleration

GRADES 6th – 8th

MODULE
4.1

GRADES
6-8

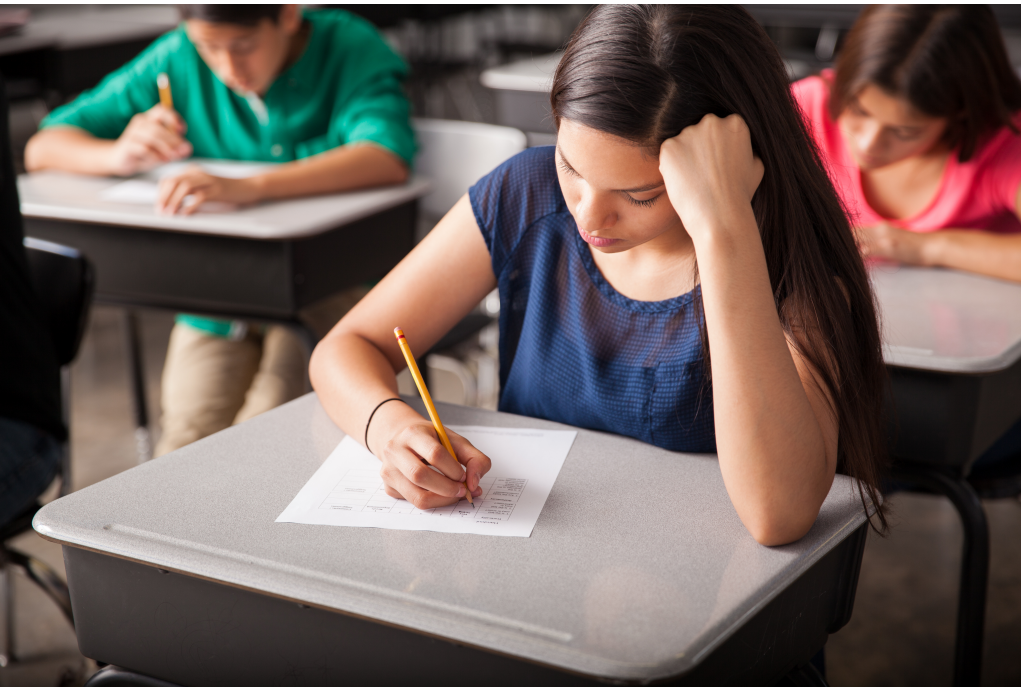
What Do You Need?

Supplies Provided

[Worksheets](#), Basketballs,
Tape Measures, Masking
Tape and Digital Timers

Materials Needed

Calculators and Pencils
Optional: Scale



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 to access the Assessment & Key.

Engage

Record a slow-motion video of passing the ball.

Explore

What does your group observe when watching the video? Can you draw a *force diagram* of the pass?

Explain

Learn about how to calculate the force put on the ball using Newton's 2nd Law: $F = MA$.

Elaborate

How does Newton's 2nd Law react to a chest pass, bounce pass, and overhead pass?
Use the [worksheet](#).



Evaluate

Calculate the force acting on the ball when NBA star, Steph Curry, shoots a free throw. Use the [worksheet](#).



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 to access the Assessment & Key.



Extend

Challenge Yourself!

What unbalanced force creates the most motion of the ball: chest pass, bounce pass, or overhead pass?



What is your Dream Job?

STEM Jobs in Sports

- Statistician
- Data Analyst
- Biophysicist
- Sports Physician
- Strength and Conditioning Coach

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