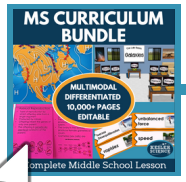
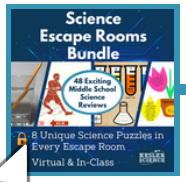
What Can Kesler Science Do for You?

4th - 8th grade science teachers love our Life, Earth, and Physical Science materials! With these easy and engaging materials, teachers can save planning time and put their focus back on the teaching that really matters.



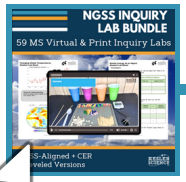
5E LESSONS

Two-week lessons with over 100 topics



ESCAPE ROOMS

Engaging activities for review



INQUIRY LABS

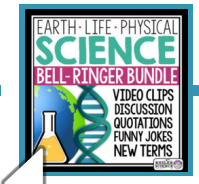
Three different levels to fit every student

AMAZING ANCHORS

Anchoring phenomenon to book-end your lessons

SUB PLANS

Never worry about planning for a sub again.



WARM-UPS

Bellringers for the entire year

STATION LABS

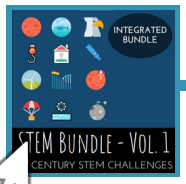
Student-led exploration

INTERACTIVE NOTEBOOKS

Bring science journals to life.

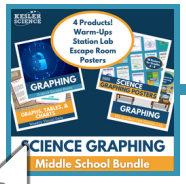
WIKI TICKETS

Quick formative assessments



STEM CHALLENGES

Real-world STEM problem-solving

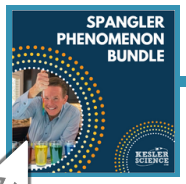


GRAPHING

Table and charts and graphs ... OH MY!

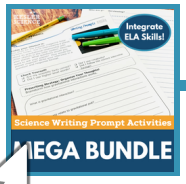
SCIENCE READING COMPREHENSION

Leveled reading passages with mini-activities



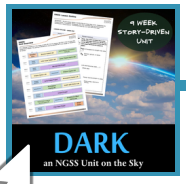
SPANGLER COLLABORATION

Exclusive Steve Spangler lessons and videos



WRITING PROMPTS

Writing activities covering 100+ topics



EXPLORIES

Story-driven units with integrated activities

The Kesler Science Professional Learning Network (PLN) group on Facebook has a huge community of engaged and supportive science teachers - come join us!

KESLER SCIENCE

Name: _____

Date: _____

Tumbleweeds on a Roll

Imagine opening your front door to find it's completely buried in... tumbleweed? Your car and street are covered, too. It's not science fiction; it's happening in Utah! I've attached a video below - it's wild!

Tumbleweeds invade Utah neighborhood

Even though tumbleweeds are a familiar backdrop of Westerns, they're not just an American phenomenon. "Tumbleweed" is a catch-all phrase for plants all over the world whose seed dispersal strategy relies on the upper part of the plant detaching and rolling in the breeze.

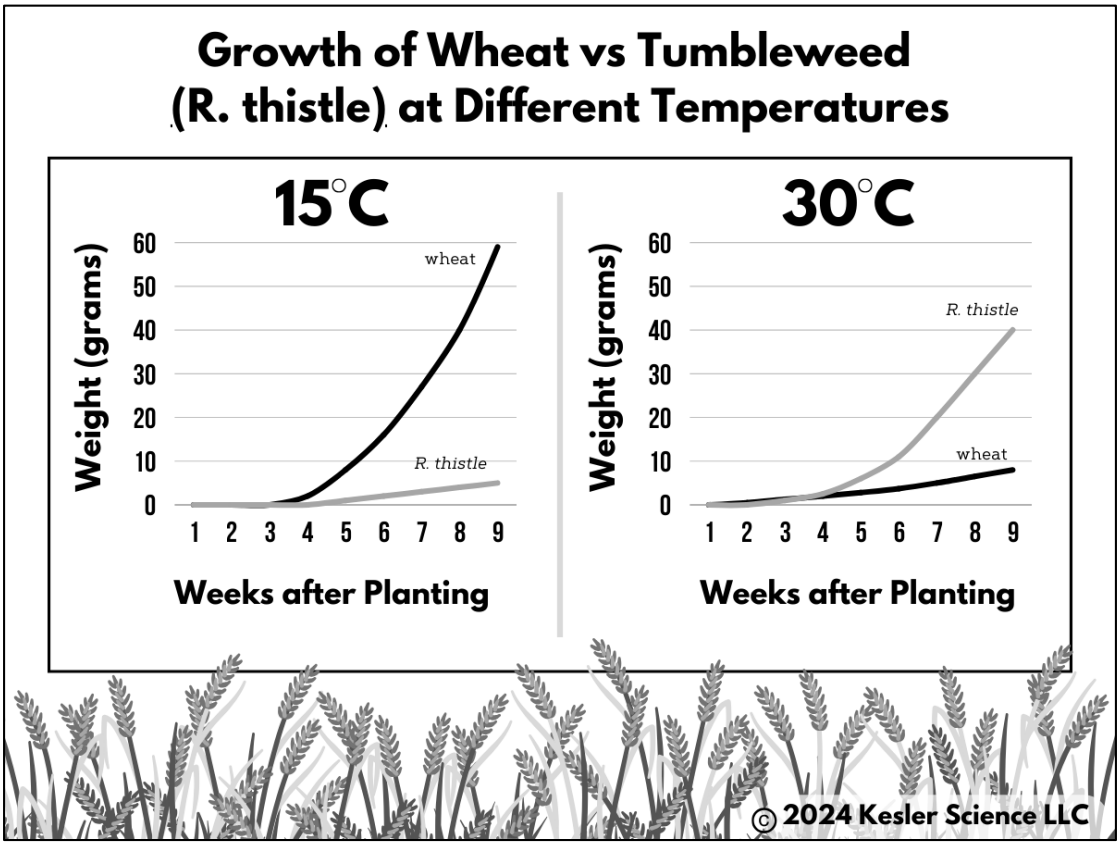
Tumbleweeds in the U.S. are mainly an invasive species of Russian thistle that the U.S. government has fought for decades. The government wants them gone because they force extinctions of native plants and catch fire very easily. The efforts to remove them have failed spectacularly, though; the plants are just too adept at survival.

First, a quick botany recap: generally, plants absorb CO_2 from the atmosphere during the day to use in photosynthesis. They have to keep the stomata on their leaves open to allow this gas exchange, which also allows moisture to escape. In very hot weather, plants may close their pores, but then their growth slows from lack of carbon dioxide.

Russian thistle, commonly known as tumbleweed, has some amazing adaptations. First, it's part of a group of plants that use CO_2 more efficiently. Second, these plants have a special metabolism that allows them to save carbon dioxide that the plant produces at night.

As a result, on a hot day, Russian thistle can close its stomata to save moisture and still have enough CO_2 to keep growing! Check out this info, on the next page, from the Saskatchewan Agriculture Knowledge Centre.

Tumbleweeds on a Roll



The graph above compares the growth in wheat and Russian thistle at different temperatures. Wheat isn't in the same group as tumbleweed; it isn't able to store CO_2 for use the next day. If these two plants were competing for the same space in a field, which would grow better in cool weather, and which would grow better in hot weather? How could weather play a role in this year's tumblegeddon?

1. How does temperature impact the growth of Russian thistle? How can you tell?

   _____

   _____

2. In 15 degree C weather, how many weeks with the growth rate of wheat and Russian thistle be about the same?

   _____

   _____

3. Use data from the table to justify how warmer temperatures would change the plants that would be most successful in this habitat.

   _____

   _____

   _____

Blog Link: https://blog.keslerscience.com/phenomenon-and-graphing/tumbleweed-adaptations
Video Link: https://youtu.be/ayo-o5qqVcw

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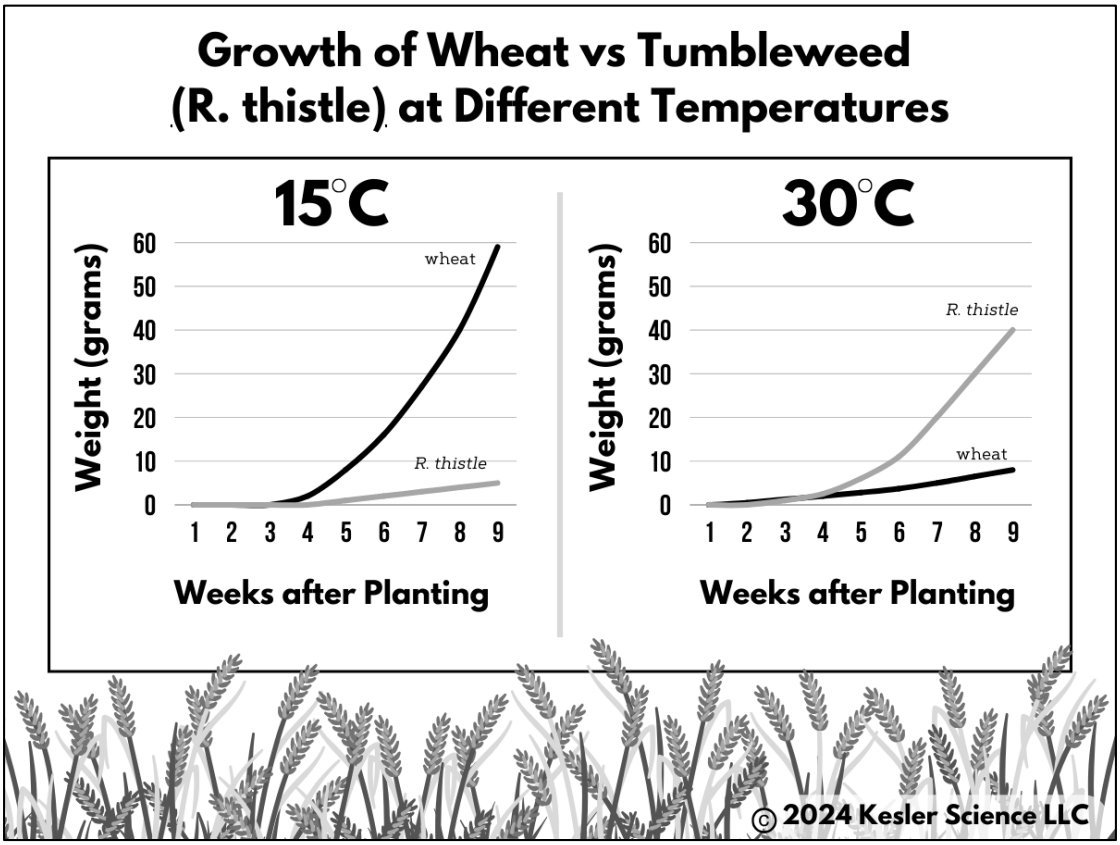
Weekly Phenomenon
Graphing Activity
Teacher Key

Tumbleweeds on a Roll



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1. How does temperature impact the growth of Russian thistle? How can you tell?

   Russian thistle grows much better in 30 degree C temperatures. After 8 weeks of growth in 15 degree C weather, the thistle has an average weight of about 8 grams. After 8 weeks of growth in 30 degree C weather, the thistle has an average weight of about 30 grams.

2. In 15 degree C weather, how many weeks with the growth rate of wheat and Russian thistle be about the same?

   The mass and growth rates of the plants are about equal for the first 3 1/2 weeks.

3. Use data from the table to justify how warmer temperatures would change the plants that would be most successful in this habitat.

   In 30 degree C weather, Russian thistle has an average weight of 40 grams after 9 weeks of growth. After 9 weeks of growth in similar conditions, wheat has an average weight of 9 grams. This suggests that Russian thistle would grow to larger sizes in an ecosystem with warmer temperatures.