

Episode 5: CARBON SOURCES – CRUDE OIL FUELS

QUESTIONS: HOW DOES YOUR FOOD CREATE CO₂ EMISSIONS?

Before you view Episode 5

Activity 1: Now increase your visual literacy and “warm up” by drawing an icon for some things you buy (or wish you could).

| | | | |
|-----------------------|----------------|------------------|----------------------|
| | | | |
| Favorite Fruit/Veggie | Favorite Snack | Favorite Dessert | Favorite Main Course |
| | | | |
| Favorite Fast Food | Favorite Candy | Favorite Protein | Favorite Bread |

Share drawings with others in your class. If you want to, you can redraw any icons that you see differently after sharing.

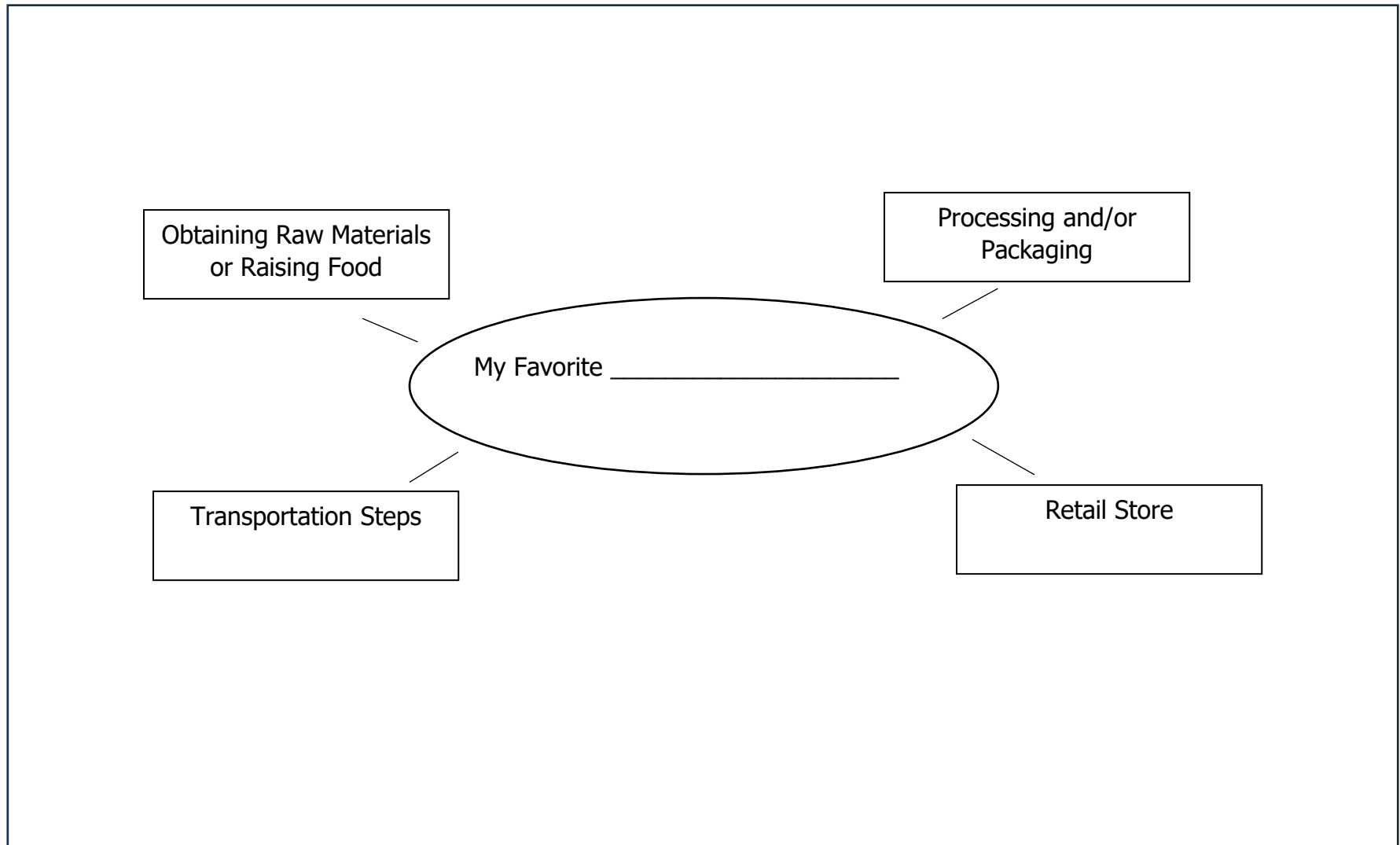
After Viewing the Crude Oil Episode

Activity 2:

Watch *The Industrial Tomato* video <https://vimeo.com/138258792> vs *The Local Tomato* <https://vimeo.com/148116105> .

Find out where your food comes from: https://www.rsb.org.uk/images/pdf/Geography_lesson_presentation.pdf

Now choose one of your favorites from Activity 1 and use words as well as images to think about how electricity and transportation are needed to process and transport your favorite food to you. You can go all out and research the ingredients in the label if it's processed food.



Activity 3:

Discussion: Share your brainstorm from Activity 2 with one or two other students. Add anything new you get from your discussion with them. Share brainstorms in a large group.

Where Your Food Comes From (https://www.rsb.org.uk/images/pdf/Geography_lesson_presentation.pdf) lists things we can do support lower CO₂ emissions by choosing our groceries. Which of those would work for your favorite food? Can you think of other solutions that might work for your favorite food?

A Deeper Look into Crude Oil Fuels:

Explore other Crude Oil topics by taking notes with words and images while watching or reading these videos/articles. Afterwards, students may want to go back to their brainstorm or revisit the class discussion.

Videos:

BBC: *Where Does Your Food Really Come From?* <https://www.bbc.com/reel/video/p07bj7pk/where-does-your-food-really-come-from->

Ted-Ed: https://www.ted.com/talks/daniel_sperling_and_gil_tal_the_surprisingly_long_history_of_electric_cars

Ted-Ed: https://www.ted.com/talks/ted_ed_what_s_the_best_fuel_for_your_car

Articles:

Has a good graphic about emissions from foods: <https://ourworldindata.org/food-choice-vs-eating-local>

8 Billion Trees: <https://8billiontrees.com/carbon-offsets-credits/carbon-ecological-footprint-calculators/car-calculator/>

Science News: <https://www.snexplores.org/article/innovation-greener-future-jet-airplane-travel-surfing-winds>

Science News: <https://www.snexplores.org/article/your-food-choices-affect-earths-climate>

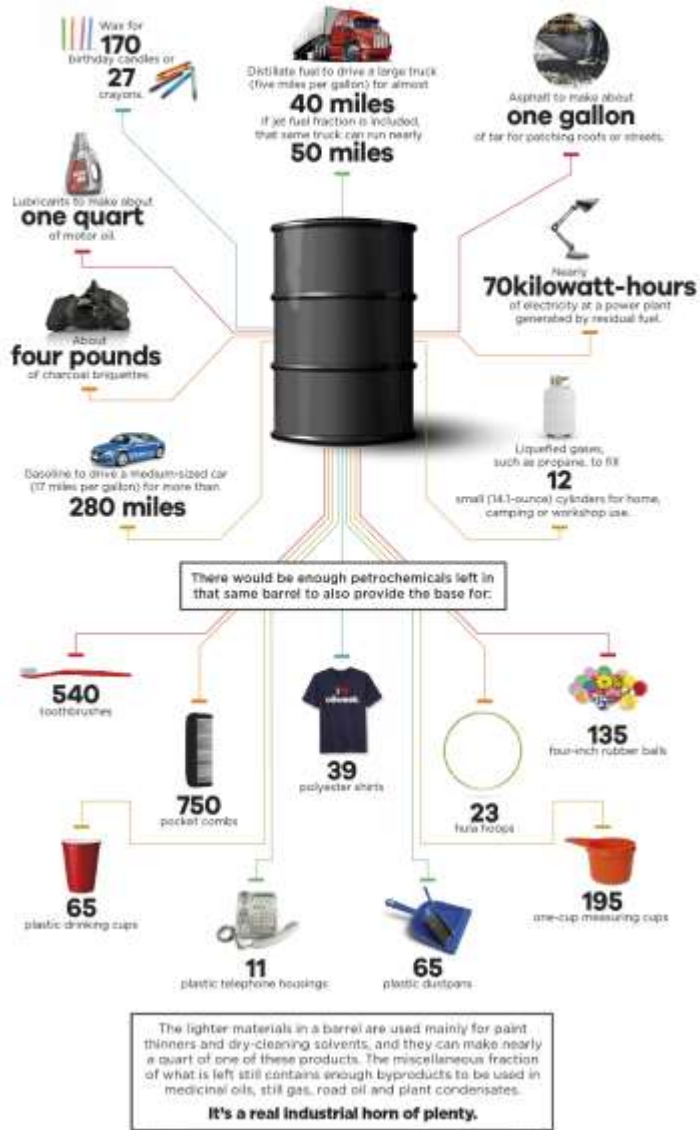
See these Infographics from visual capitalist:

<https://www.visualcapitalist.com/can-made-one-barrel-oil/>

<https://www.visualcapitalist.com/whats-made-barrel-of-oil/>

What can you make from one barrel of oil?

Researchers broke down a typical barrel of domestic crude oil into what could be produced from it. The average domestic crude oil has a gravity of **32 degrees** and weighs **7.21 pounds per gallon**. Here's what just one barrel of crude oil can produce:



Visit <https://energy4me.org/blog/what-can-be-made-one-barrel-of-oil/> to read article or download pdf of this graphic.

THE PRODUCTS DERIVED FROM A BARREL OF CRUDE OIL

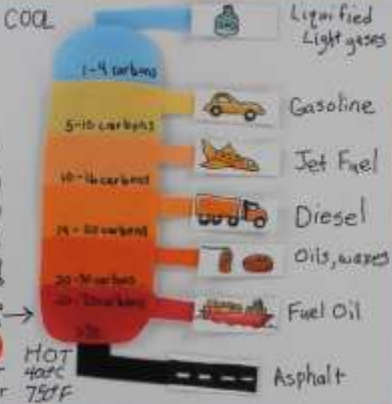
A barrel of crude oil (42 gallons) produces just under 45 gallons of refined products, from transportation fuels to essential materials for everyday products.

This graphic uses a barrel of oil to represent the proportions of how the majority of crude oil is processed.



<https://www.visualcapitalist.com/whats-made-barrel-of-oil/>

Crude Oil



Powerful Gas

- Safety goggles or glasses
 - Open outdoor area
 - No innocent bystanders
- 1 Fill 1/2 with H₂O
 - 2 Add 1/2 tablet
 - 3 Cover
 - 4 Upside down
- STAND BACK!

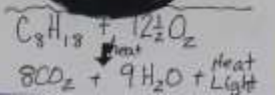
Jet Engine



CO₂ comes from CRUDE OIL FUELS



Internal Combustion Engine



In 2021 we produced 7.6 billion tons of CO₂ globally for transportation



Global CO₂ from Transport

Airline will be starting to use SAF!