

## Theme 2 "At the farm" work-it-out worksheet



# TAKE A BITE OUT OF CLIMATE CHANGE

#TakeABiteAtHome

AT HOME



## DID YOU KNOW?

Cows have a stomach with four separate compartments to digest their food!



Cows regurgitate food after swallowing so that they can chew it again! Tiny organisms in cows' stomachs cause them to burp a powerful greenhouse gas called methane (CH<sub>4</sub>).



Cows need to eat a lot of food to provide us with beef and milk! The cow uses this food to grow muscle and to keep warm, and some of the food comes out as poo!



## HANDS ON ACTIVITY

**Your mission...** is to see how much greenhouse gases are caused by producing milk and beef.

**You will need...** paper, a pencil, colouring pencils, about 50 counters, e.g. beads, lego or grains of rice.

**What to do...**

1. Draw a picture of a cow, and draw a cloud coming out of its mouth to show it is burping gas!
2. Draw a person with a glass of milk, and draw another person with a piece of steak.
3. Place 1 counter on the glass of milk, and place 2 counters in the gas cloud. *For every gram of milk we drink, the cow causes 2 grams of emissions.*
4. Collect up the counters and place 1 on the steak, then place 46 in the cloud coming out of the cow's mouth. *For every gram of beef we eat the cow causes 46 grams of emissions (14g in the burps).*

**Bonus challenge...** about the food eaten by a cow to make beef.

1. Draw some beans near the cow on the ground. Place 20 counters on the beans.
2. Move these counters to the cow's mouth.
3. Move one of these counters to the person's mouth. Move the rest of the counters to different parts of the cow's body, place some of them as poo under its tail!  
*For every 20 grams of food the cow eats, we eat 1 gram of beef. The rest is used up to keep the cow warm and help it grow (or end up in poo)!*
4. Collect the counters and place 1 on the beans, now move this counter to the person's mouth. *No food is wasted on helping the cow to grow or keep warm because we have eaten the food directly!*

Tweet us a picture of what you did! #TakeABiteAtHome

## I WANT MORE

Take a look at these extra resources:

- National Geographic Sustainable Farming Game  
<https://tinyurl.com/yymrorgs>
- NASA "Methane Stinks?"  
<https://tinyurl.com/yablprt5>
- A farmer using cow poo as fertiliser  
<https://tinyurl.com/ybwd2dz7>

Find all these links and more on our web page

<https://www.takeabitecc.org/athome>

## WHO WE ARE

Hi all, I'm Jo. I've just finished studying for a Masters in Physics with Astrophysics, where I became involved with food and climate change. As the next step on my food and climate journey I will be studying for a PhD in Environmental Science.



Online supporting video available 12pm Tuesday 9th June.

Theme 2  
 "At the farm"  
 work-it-out worksheet  
 bonus page



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## A POEM BY JOANNE

*The cows on the farm, they love to eat grass,  
 The problem with this is the gas they pass.  
 Cows have a stomach with four compartments,  
 Food passes through each of these departments,  
 The food is stored in the first two sections,  
 Then chewed again in the mouth to aid with digestion,  
 Once re-swallowed three and four digest it,  
 What happens after that? Yes you've guessed it!  
 The cow leaves a smelly poo on the farmer's land again,  
 But this is not as bad as the potent methane  
 That is burped out by the cow while it is digesting,  
 Methane is a greenhouse gas and the problem it's presenting  
 Is the warming of the earth and pollution suggesting,  
 That we need to find a way to reduce greenhouse gases by reducing the  
 amount of gas that herds of cows are passing.*

## CREATIVE MODE ON

- Write a poem, rap or a short story which communicates the issue of, for example, emissions associated with cows.
- Draw a comic strip showing a story of, for example, where the emissions associated with cows come from – I bet you would love to draw a cow eating grass and then burping out gas.
- Write or perform a play showing where the emissions on a farm come from, for example, you could pretend you are a farmer and walk around your 'farm' and say 'cows burp methane'.

We would love to see what you've created! Share with us using:

#TakeABiteAtHome

Hi all, did you like my poem?  
 Find more science poetry on the  
 Poetry of Science web page:

<https://tinyurl.com/yd95zhbn>

