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Using evidence informed research to develop learning resources on climate action
Climate Emergency

- Notice
- Interpret
- Personal Responsibility

(Davis 2020)
Noticing Drought as a UK hazard

- Pervasive, diffuse, slow ‘creeping’ onset
- High stakes risk
- Socially/ culturally constructed
- D-word politicised
- Floods more visible (immediate, emotive, visual).
- Multi-stakeholder

A hidden risk…. challenge of visualisation and engagement?

Classic definitions of ‘drought’ and how to notice it

Source: National Drought Mitigation Centre, University of Nebraska, Lincoln
Interpreting drought: science-narrative interaction

Classic definitions?
Facts; objectivity
Specialist science as capital
Working with science as ‘skill’

Classic definitions?
Perceptions; personal
Vignettes; anecdotes
Stories as capital
Working with stories as ‘skill’

The ‘big challenge’ – thinking differently – about data and evidence
DRY’s approach in a nutshell

- Co-production
- Seven catchments
- Gradients: hydrological/climatic, socio-cultural; urban-rural
- Voices: statutory; non-statutory; different publics

(see Blake and Ragab, 2014)
Exploring drought futures and adaptive options - science scenario-ing and storyboarding

UKCP09 Scenarios

DICASDM drought risk modelling
Bridging science and community knowledge – in practice…

Working with stories is a way of dismantling knowledge hierarchies and blurring the boundaries between knowledge producers, knowledge implementers and knowledge consumers.
DRY’s emergent ‘UK drought myths’ ??

1. Water is infinite and free
2. Britain is wet: droughts don’t happen
3. Drought only occurs in the summer, when it’s hot
4. Drought is when rivers and reservoirs run dry (drought as dry riverbeds, empty reservoirs)
5. Rain spells the end of drought
6. All droughts finish with heavy rainfall
7. Floods and droughts cannot occur at the same time
8. Droughts are short term problems
9. If you cannot see impending drought, there is no risk or impact
10. Drought happens in other countries
11. Costs of flooding are greater than drought
Personal Responsibility

Noticing
Interpreting
Personal responsibility

- Book produced in collaboration with a socially engaged artist and Primary ITT students
- Explores DRY’s drought myths
- Promotes thinking about drought, water scarcity, adaptation and agency, and water stewardship
- Will be promoted around different networks including Civil Contingencies, London Climate Change Partnership etc.
The Story
The teacher’s notes
September

Days to Christmas: 107

Dear Diary,

It's a new school year and, to celebrate this, Miss Tereign has set a homework project.

"Find something interesting about your local area 6T."

Like what?!
Nothing interesting ever happens here and it's too hot to think.
Visual Literacy – what questions would you ask?

October

Days to Christmas: 69
Potatoes dug up: 1 BIG bag full.
Ideas for project: 0.

Dear Diary,
I love going to my Grandad’s allotment. Today we dug up the first potatoes. Some of them looked like snowmen covered in soil. Grandad reckons they go that way if they haven’t had enough water because it hasn’t rained much this year (but it seems to rain all the time?). He told me about a super hot summer, ages ago, in 1976. Great Grandma had to use as little water as possible in the house and they were told to, “let the yellow mellow and flush the brown down.”

...ugh! DIS – GUS – TING!! There’s no way I would do that, even if it didn’t rain for ages - not that that would ever happen nowadays, it’s always raining.
Why does the soil look like that?
What are those buildings?
Why is the ground a map?
Is the hose important?
Why is there a plastic water bottle?
Why should we use water butts and cans?
What's going on with the fox?
What's the radio saying?
What's grandpa growing?
Why a pencil fence?
June

Days until my birthday: 14 (2 weeks)

Dear Diary,

Water Woman's work is going well! We had another school trip and visited Grandad's allotment. We got loads of ideas of how to reduce the amount of water we use at school. He showed us plants that don't need much water (he called them drought resistant). So we can eat tasty food that doesn't have to rely on as much water, as it grows.

The Eco Club are putting together an action plan for every class.

It hardly rained at all this month. Really light mizzle for about 10 minutes on 4 days. 😞
December

Number of days it rained at all: 6 (no snow at all) 😞
Number of days we had indoor play due to rain: 1 (I hate indoor play)

Dear Diary,

It's CHRISTMAS!!!!!!!!! 😊 I have been given water goggles. All I can see is the water that is in everything. Amazing! We don't just use the water from the taps but water is needed for all the stuff we make and buy. Did you know that only 2.5% of water on the Earth is drinkable? Using all of this water for stuff that's not essential has got some problems: it's costing money and we're not even using some of the things we buy that use lots of water (Dad didn't like his turkey and the nut roast was burned so he threw it away). Also, pumping water to homes and factories uses fossil fuels and that produces carbon dioxide.

(Days to my birthday: 188)
January

Days to Birthday: 142

Dear Diary,

Here’s what I’ve found this week...

Rainy days: 3 (still no snow though 🤦‍♀️)

Indoor play due to rain: 2 (🤦‍♀️🤦‍♀️)

Cups of tea made: 47 (500ml per cup = 23.5 litres!!)

Loo flushes: 38 (15 litres every flush = 570 litres!!!!)

Number of baths Ben has had this week: 13 (365 litres per bath = 4745 litres!!!!!)

Getting people to drink less water isn’t healthy but taking short showers, instead of baths, could really make a difference to how much water we use.

I’m still not sure if Great Grandma’s idea about letting the yellow mellow in the loo is going to work – won’t it smell? 🙄
February

Number of days until my birthday: 130

Dear Diary

I’ve done it – the project is completed. Everyone was interested in my wonderful water facts and I shared lots of ideas for saving water and looking after people and animals in the dry weather. Miss Tereign has already bought a washing up bowl for the staff room as that’s one way to cut down on the water you use when you wash up.

Number of snowy days: 3 (whoop whoop!)

Number of rainy days: 7

Number of days we had indoor play because of rain: ZERO (I’m not sure this is a good thing anymore).
March

Days until my Birthday: 108

Dear Diary,

No one has really changed what they do: Ben still takes loads of baths, Dad still puts a pair of jeans in the washing machine on their own and thinks it’s OK, Mum still buys loads of avocados, and no one else but me bothers to check that the birds in the garden have water. It’s dark and it’s cold and I can’t seem to get people to change.

Number of days of rain: probably not enough to actually make a difference.

Water used: What’s the point in counting? Can’t do anything to reduce it, anyway.
April

Days until my Birthday: 71

Dear Diary,

We've been on a school trip this week and it was awesome. We went to the river and saw a kingfisher. Ashani reckons she saw an otter. It's been raining loads but the rivers are still really low. There were even cracks in the ground because it's been so dry.

Miss Tereign said they are called desiccation cracks. Callum dropped his sun cream down one. He could fit his whole arm in the crack but still couldn't reach low enough to get it out. He had to spend the rest of the day under the trees for shade.

Miss Tereign said it might be a good idea for the Eco Club to do some work on saving water at school. Sounds good to me. Finally, we might be able to do something about the way people use water.
May

Days until my birthday: 44

Dear Diary,

I'm feeling far more positive. I'm going to make some changes at home and get everyone involved.

In this house thou shalt...

* NOT have baths - and have a shower for no more than 3 minutes (timer put in shower)
* Only put washing machine on when full
* ALWAYS turn off tap when cleaning teeth.
* Use the washing up water to water the plants
* Put out saucers of water for the birds, to make sure they have plenty to drink.

I AM WATER WOMAN! I will help make these changes.

I can't wait to see what we can do at school too.
July

Rainy days: 2 drizzly, 1 amazing thunder storm.

Dear Diary,

IT'S MY BIRTHDAY!

I invited everyone from the street over for a party in the park. We got talking about the weather - grown ups love doing that! It seems like I'm not the only one who's worried about water and now we've got loads of ideas of what we can all do, in Riverdale Road. Just think how much water could be saved if all 20 houses switched from having baths to showers, turned off the tap while they brushed their teeth or used a washing up bowl, instead of the sink. Days to Christmas: 171
August

Days to Christmas: 135
Days of rain: 3 showers. There has been dew on the garden every morning.

Dear Diary,

I love summer holidays. Hopefully it will rain. At the moment, it’s sunshine all the time so I need to check on the water baths I’ve put out for the birds. Today, Grandad is going to show me how he plants vegetables in a way that takes even less watering and no digging!

I wonder how everyone else’s plans for saving water are going? Hopefully the word is spreading. As Grandad always tells me, everyone can make a difference.
Teacher activity book

- Misconceptions card sort
- Hidden Water Content in food – research
- Hidden water in supply chain – calculating water footprints
- Social responses to drought (drama)
- SUDS (sustainable drainage systems) top trumps
- Action plan template
### United Nation’s Sustainable Development Goals

<table>
<thead>
<tr>
<th>No poverty</th>
<th>No hunger</th>
<th>Good health</th>
</tr>
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<tbody>
<tr>
<td>Quality education</td>
<td>Gender equality</td>
<td>Clean water</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>Good jobs and economic growth</td>
<td>Innovation and infrastructure</td>
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<tr>
<td>Reduced inequalities</td>
<td>Sustainable cities and communities</td>
<td>Responsible consumption</td>
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<tr>
<td>Climate action</td>
<td>Life below water</td>
<td>Life on land</td>
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<td>Peace and justice</td>
<td>Partnership for the goals</td>
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**President of the World: what would you do first?**
### Hidden Water

<table>
<thead>
<tr>
<th>Product</th>
<th>Amount of water in 100g (g)</th>
<th>Product</th>
<th>Amount of water in 100g (g)</th>
<th>Product</th>
<th>Amount of water in 100g (g)</th>
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</thead>
<tbody>
<tr>
<td>Cornflakes</td>
<td>3</td>
<td>Custard</td>
<td>75</td>
<td>Doughnut</td>
<td>26</td>
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<tr>
<td>Slice of bread</td>
<td>39</td>
<td>Chocolate biscuit</td>
<td>2</td>
<td>Pancake</td>
<td>43</td>
</tr>
<tr>
<td>Cooked pasta</td>
<td>72</td>
<td>Cheese and tomato pizza</td>
<td>51</td>
<td>Cooked rice</td>
<td>70</td>
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<tr>
<td>Fish fingers</td>
<td>56</td>
<td>Apple</td>
<td>65</td>
<td>Avocado</td>
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<tr>
<td>White grapes</td>
<td>76</td>
<td>Pear</td>
<td>69</td>
<td>Raspberries</td>
<td>83</td>
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<tr>
<td>Baked beans</td>
<td>74</td>
<td>Carrots</td>
<td>90</td>
<td>Lettuce</td>
<td>96</td>
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<tr>
<td>Mushrooms</td>
<td>92</td>
<td>Potato</td>
<td>81</td>
<td>Cucumber</td>
<td>96</td>
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<tr>
<td>Yam</td>
<td>66</td>
<td>Sweet corn</td>
<td>65</td>
<td>Parsnips</td>
<td>83</td>
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<tr>
<td>Turkey</td>
<td>65</td>
<td>Sausage</td>
<td>48</td>
<td>Hamburger</td>
<td>51</td>
</tr>
</tbody>
</table>

**Total water footprint = 162 gallons**

1 leaf of lettuce = 2 gallons of water
2 slices of bread = 24 gallons of water
2 slices of cheese = 32 gallons of water
1/5lb of turkey = 104 gallons of water
Ofsted key messages

Buffet to Banquet
Is there a vision for geography and how does it reflect and support the school context?

How has curriculum content been selected and sequenced and how does this reflect the vision?

How do geography knowledge and skills prepare all students for the next stage of education?

How clearly are expectations and end goals built into the curriculum?

How good is teachers’ subject knowledge and knowledge of how geography is taught and learned?

How well does teaching embed secure understanding and how does assessment support this?

How do high-quality resources and specialist approaches such as fieldwork support learning?

Which teaching approaches work best in specific circumstances and why?

To what extent have students progressed towards curriculum ‘goals’ and evidenced what they can remember about the content studied?

What do student outcomes tell us about the appropriateness of the curriculum intent?
https://tinyurl.com/tg3uoe2

Evaluation – please do link to this....
Primary Geography: Where are you?

Points of interest: what do you want to tell us about where you are?

Take a photo or draw a map and share where you are.

Soundscape - what can you hear? Share through words or upload a recording.

Emotionscape - how do you feel where you are?