State of the Nation – Primary Science

• A large survey of 1,010 primary teachers was carried out in Sept. 2017 commissioned by the Wellcome Trust.
• Only 1.4 hours per week on average are typically devoted to science in primary school
• Barriers to teaching science:
  - Budgets/resources
  - Space/time
  - Subject importance
  - Subject knowledge/confidence
• 91% of schools have a science leader
Primary science

1,906 pupils aged 7-11 responded to the State of the Nation Primary Science survey

Microbiology education in terms of an understanding of hygiene relating to hands, food and germ transfer?
   Antibiotic resistance??

Background of Budget squeezes
   - squeezing consumables
   - squeezing release time for planning
Time squeeze

93% of pupils agree a lot or agree that they like to understand how things work
87% find science interesting
91% agree that science can help the environment
90% agree that science can help people make things
80% agree that science can help animals
State of the Nation – Primary Science

- National science curriculum for Foundation, key stage 1 & key stage 2

- [PSHE curriculum Health & Wellbeing]

- Schools can introduce additional content within the relevant key stage and many deliver science through dedicated science weeks
Bread lesson notes

Bread

- History
- Art
- Different types bread/different cultures
- Science
Thoughts about Germs

• Children’s pictures of ‘germs’

“It should look like a snail”
Kara, 5

“All germs look different”
Poppy, 9

“I know what germs look like; they are round with spikes on them”
Amelia, 8
Visit to UG-Teaching Biology

- Visit to undergraduate Biology teaching labs at UEA, Norwich, May 2018

160 nutrient agar plates
  - Lab timers
  - Blue pens!

Pot of Protozoa and access to microscopes
Raspberry Pi and a detective health game with cards
Microbe Top Trumps (1 x virus and 1 x Bacteria)
There’s a zoo everywhere but it is too small to see
Children planning the agar experiment

- Year 3 and 4 - worked in pairs or groups
  - help from friendly parents & a teacher
  - planned timing of settle plate exposure
  - planned who was testing which areas
  - planned a control for their experiment

Decided that some groups would go outside and others would remain inside
Protozoa
Raspberry Pi Health Game

- Health game on Raspberry Pi

- Raw Chicken
- Tablet
- Toddler
Raspberry Pi Health Game

• Health game on Raspberry Pi

ATGCATGC
GTCATGAC
CCAATTGA
TGTGATCA
GTCGTCCA
GTGGTGAC
AAAGTATC
GTTGTTAT

Codewords
Survey

Did you like visiting the labs?
Did you like the experiments with agar plates?
Did you like looking down the microscope?
Did you like the computer game?

Extra comments:
Will we come again?
Will we ever come back?
I love microscopes!
Will we come again and test our ones we made?

* Only one Pi unit and many didn’t get a turn
Return visit

Returned with grown plates (30°C for over a week)
Children counted colonies, looked at different colonies and compared plates

*Inside the lab*
- There were few colonies even in the bin
- There were more colonies from the windowsill
- Time of exposure didn’t make much difference (timings were not that long)

*Outside the lab*
- Outside in the open air there were more colonies, time exposure made a bit more difference
- The winning plate was taken from under a bush
Future trip!

• Investigate handwashing and test best practice for drying hands (Y6)

• Children plan the experiments (working scientifically)
• Dirty hands consistently between washes!
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