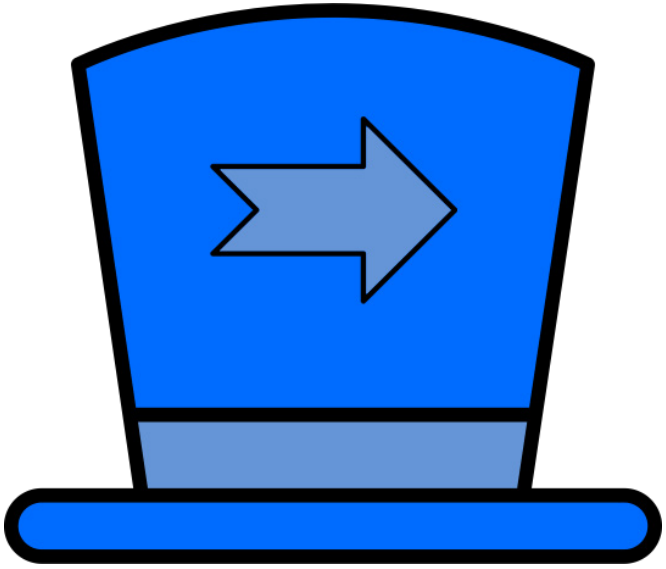
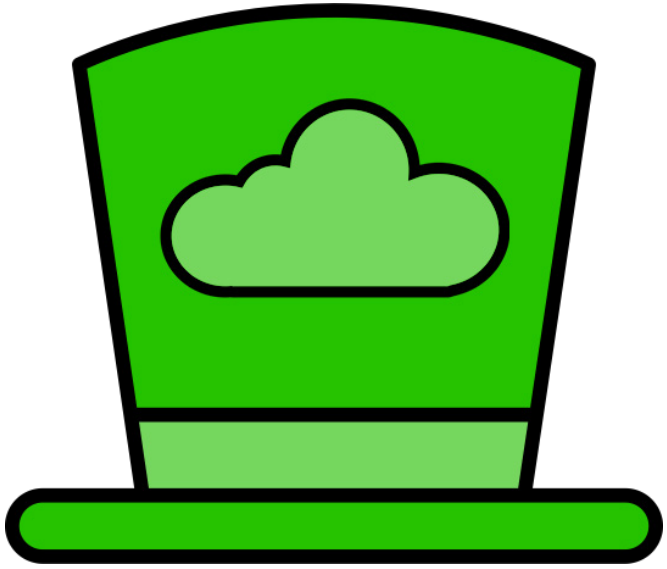
GM Crops



GM Crops



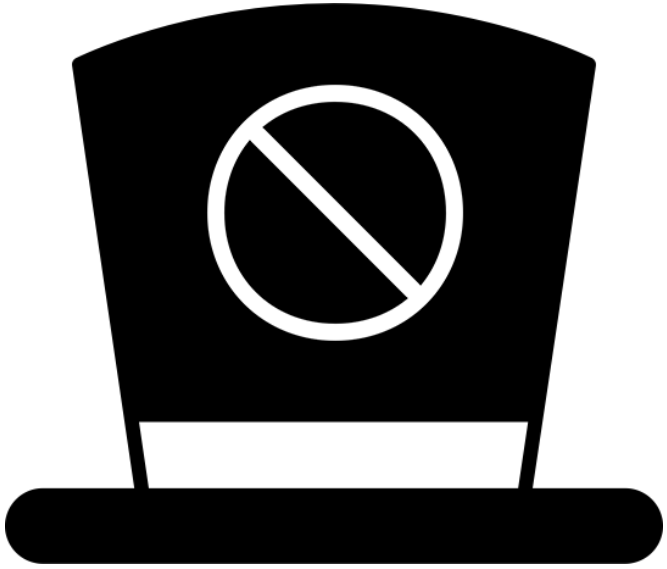
GM crops DeBono printable cards 1-6

- Liam insists that the production of GM crops is the future of food production for a growing global population.
- Max disagrees and thinks that to focus on the use of GM crops to solve our resource problems could have dangerous consequences.

DISCUSS

- Could selective breeding be an alternative to GM crops that can also confer hardiness to the crop?
- Could we focus resources on creating more effective herbicides or pesticides?
- How could we encourage a wide variety of crops that is better for a healthier countryside?
- How could we study the use of current GM crops to learn the best methods for their use.

GM Crops

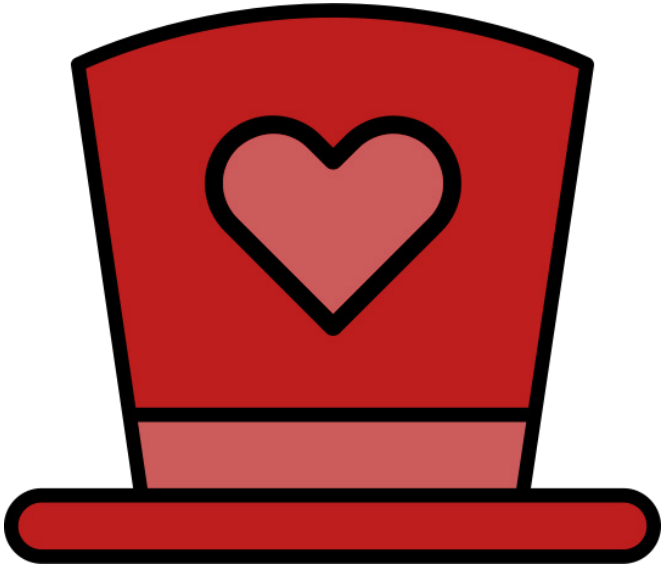


GM Crops

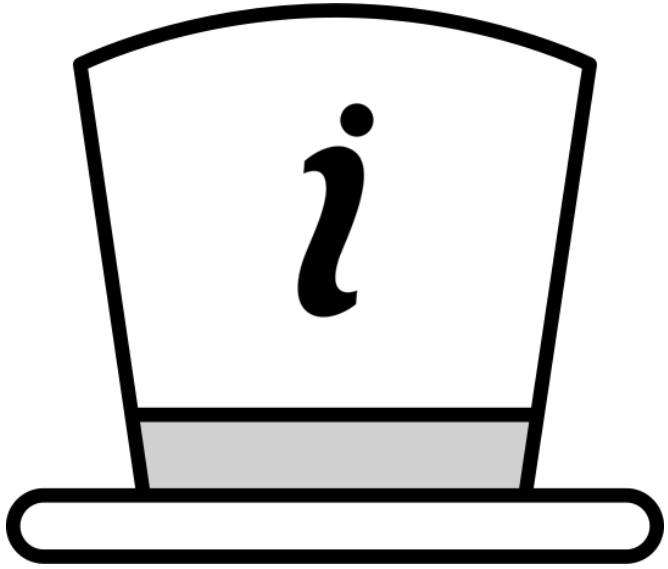
- What if the pollen of GM crops were to transfer to wild relatives conferring herbicide resistance and the possible creation of 'superweeds'?
- Giving plants a gene to produce its own pesticide agents may encourage insects or fungi which are resistant to the pesticide.
- What if using antibiotic resistant genes to mark DNA with required characteristics in GM crops could confer this resistance to bacteria in the gut of the consumer.
- Plant breeding of GM crops would be a commercial project and few species would be favoured reducing biodiversity.
- Does this follow organic farming principles?
- Can we be sure that there will be no adverse health effects from eating crops that are expressing a new gene as a new protein?

- Higher crop yield as GM crops can be engineered to resist pest attack.
- Higher yield means more people can be fed.
- Less use of pesticides so there is less risk of dangerous environmental effects such as bioaccumulation.
- Improved nutritional quality of food e.g. golden rice has been engineered to contain enhanced vitamin A in consumers which prevents blindness in children.
- Pharming - where modified crops can make antibodies, blood products, hormones, human and veterinary vaccines.

GM Crops



GM Crops



- Is taking a gene from one organism and placing it into another where it did not exist before 'playing god'?
- Does using bacterial vectors to move genes cause you any concern?
- What is more important? Considering ethical or religious arguments against the technology or providing enough nutritious food for all the people on earth?
- Can we ever know if these technologies are entirely safe?

- The sudden increase in human population has made food production a priority. Crops are more energy efficient than livestock.
- Genetic modification of crops has occurred for decades. Transformed plants:
  - can be disease, herbicide or drought resistant and so increase yield.
  - have increased nutritional value.
- New genes can be introduced into plants using:
  - gene guns
  - microinjections
  - Bacterial vectors.
- Success stories include:
  - Soya beans modified to show resistance to herbicides to increase yield. Used in 60% of manufactured foods.
  - Tomatoes - they have been given an insecticide making gene from Bacillus thuringiensis which is expressed only in their leaves, not the fruit.