

7. SCIENCE SOLUTIONS CARD GAMES

30-40 MINUTES

Children play a card game where they collect sets of cards based upon a raw material, the product that is made from it, the 'waste problem' that is left over and the 'green solution' of a product made from the waste.

OBJECTIVES

Explore examples of human impact (both positive and negative) on environments, for example the negative effects of population and development, litter or deforestation (Y4 Science).

To realise that science can develop solutions that can lead to a more sustainable future.

To become aware of the range of products that can be created from waste materials that have been developed by scientists.

TO BE ABLE TO

Talk about the problem of waste products which need to be disposed of and describe how science has the potential to provide possible solutions to some of these difficulties.

SCIENCE VOCABULARY

landfill	product	waste material
raw material	solution	

RESOURCES

- Activity sheet 12 (one per group)
- Science Solutions Cards (separate download)

PRIOR KNOWLEDGE/EXPERIENCE

Children should have had opportunities to play games which require them to take turns and follow simple rules.

GAME ONE (GO RECYCLE)

20 MINUTES

Look at the pictures and writing at the top of each card. This is the name of the raw material from which the different products are derived and is the name of the set. The aim of the game is to collect as many sets as possible. A product set comprises the Raw Material, the Product, the Waste Problem and the Green Solution. The Fossil Fuel card must be removed from the pack for this game.

Activity sheet 12 is placed so that it is visible to all players.

Deal out the cards so that every player has seven cards. The remaining cards are placed face down on the table. The dealer then starts by asking another player if they have any cards in a particular set. For example, they might ask "Mia, do you have any cards in the potato set?"

If Mia has any of the cards that she has been asked for she hands them over. The player who asked the question can then ask someone else if they have any cards in a set. However, if the person who has been asked does not have the card they say "Go Recycle" and the player who asked the question takes a card from the top of the stock pile.

Play then passes to the left, and the next player may ask opponents for cards from a named set. Players try to remember who has asked for which card as this lets them know what sets their opponents hold and therefore which cards it is worth asking them for.

Once a whole set is collected it is placed face up in front of the player who collected it.

Play continues until all of the sets have been completed. The winner is the player who has the most sets.

GAME TWO (OLD FOSSIL)

20 MINUTES

Activity sheet 12 is placed so that it is visible to all players.

The aim of the game is to collect pairs of cards that are in the same set and to avoid being left with the Fossil Fuel card at the end of the game.

To begin with all of the cards are dealt and players place any pairs that they can make face down in front of them (if they have three from a set only two are paired up in this way).

The dealer then spreads out their cards (ensuring that the fronts cannot be seen by the other players), and offers it to the person on their left who takes a card. If it matches a card that they already have they pair it up and place it face down before offering their hand to the next player to take a card.

Play continues to pass to the left in this way until all cards have been paired up. The player who is left with the Fossil Fuel card is declared the 'Old Fossil' and is the loser.

GAME THREE (MEMORY PAIRS)

30 MINUTES

For this you will just need the categories 'Waste Problem' and 'Green Solutions'

Place all cards face down on the table.

Take turns to turn two cards over at a time. If the matching 'Waste Problem' and 'Green Solution' cards are turned over they are kept by the player who then has another turn.

Play continues until all matching pairs have been collected.

The winner is the player who has collected most pairs.

(For all card games)

Children are not expected to remember any of the facts on the cards. The main aim is for them to realise the wide range of solutions provided by science.

Ask them to work together to think of as many reasons as possible why it is a good idea to use waste products to make new materials. Reasons might include:

- Saves sending rubbish to landfill
- They are cheaper than fossil fuels
- It can use less toxic substances than traditional methods (see example for the bio-board made from wheat straw or the eco-wax from maize)
- It can help producers stay in business (such as the orange producers in Brazil) as it gives them another product to sell.