



POLYMERS

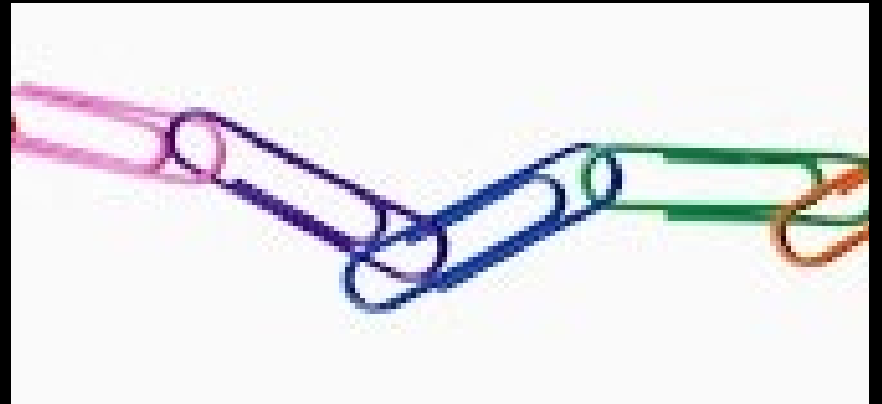
Day 1

ENGAGE:WHAT IS A **MONOMER**?

- Mono= One
- Mer= Part or Segments
- "Many, many, many **monomers** make a **polymer**!"

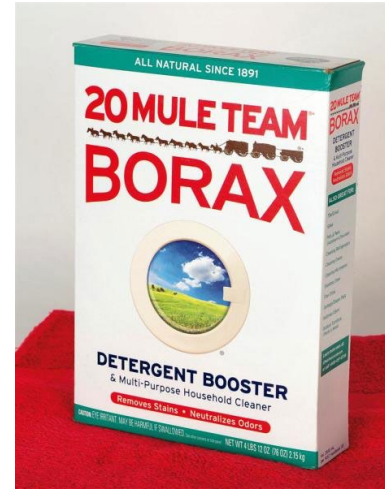
ENGAGE: WHAT IS A POLYMER?

- Poly=Many
- Mer= Part or Segment



ENGAGE: FLUBBER

- Combine water, borax, glue, and food coloring in a container
- These items represent your “polymers”
- Different things coming together to make one thing



ENGAGE: FLUBBER'S PROPERTIES

- Squishy
- Not solid
- Not liquid





POLYMERS MAKE UP EVERYDAY
ITEMS LIKE....

PLASTIC!!!!

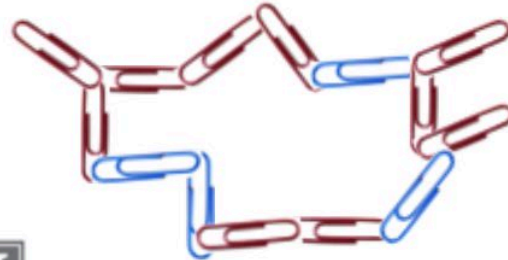
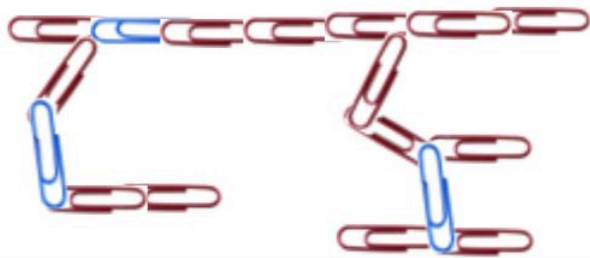
Recap first day

Polymer



Poly (many)

mer (monomer)



PHYSICAL PROPERTIES

- Like flubber, plastic has specific physical properties that can be used to distinguish it from other types of plastics

DIFFERENT POLYMERS HAVE DIFFERENT PROPERTIES

- Rigidity



- Floatability



- Clear, cloudy, or opaque



6 MAJOR POLYMERS

Polymer	Polymer Abbreviaton
Polyethylene tetraphthalate	PETE
High-density Polyethylene	HDPE
Polyvinyl chloride	PVC
Low-density Polyethylene	LDPE
Polypropylene	PP
Polystyrene	PS



THE 6 MAJOR POLYMERS AND THEIR PROPERTIES

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Polymer	Polymer (abbr.)	Rigidity			Floatability		Clear / Cloudy / Opaque
		Low	Medium	High	Yes	No	
Poly ethylene terephthalate	PETE		Medium			NO	CLEAR

THE 6 MAJOR POLYMERS AND THEIR PROPERTIES

Polymer	Polymer (abbr.)	Rigidity			Floatability		Clear / Cloudy / Opaque
		Low	Medium	High	Yes	No	
Poly ethylene terephthalate	PETE		Medium			NO	CLEAR
High density Poly ethylene	HDPE		Medium			YES	CLOUDY
Poly vinyl chloride	PVC		High			NO	OPAQUE
Low density Poly ethylene	LDPE		Low			YES	CLEAR
Poly propylene	PP		Medium			YES	OPAQUE
Poly styrene	PS		High			YES	OPAQUE

EXPLORE

- YOU HAVE 5-10 MINUTES TO FIND THE CORRECT POLYMER FOR THE FOLLOWING ITEMS



HELMET



JUG



CONTAINER



BAG









PIPE



BOTTLE

THE 6 MAJOR POLYMERS AND THEIR RECYCLING #'S

	Polymer	Polymer (abbr.)	
	Polyethylene tetrathalate	PETE	
	High-density Polyethylene	HDPE	
	Polyvinyl chloride	PVC	
	Low-density Polyethylene	LDPE	
	Polypropylene	PP	
	Polystyrene	PS	

ELABORATE

- Do you think other facilities use a specific method to separate plastics similar to how you separated the plastics?
- Why do you think separating by their RIC is important?

RESIN IDENTIFICATION CODES

Used to see how and if
certain plastics can be
recycled

RESIN IDENTIFICATION CODES

- Soda, water, shampoo bottles: PETE (1)
- Detergent bottles and flower pots: HDPE (2)
- Trash bags and compost bins: LDPE (4)
 - Toys and picture frames: PS (6)



PETE

polyethylene terephthalate

soft drink bottles, mineral water, fruit juice containers and cooking oil



HDPE

high-density polyethylene

milk jugs, cleaning agents, laundry detergents, bleaching agents, shampoo bottles, washing and shower soaps



PVC

polyvinyl chloride

trays for sweets, fruit, plastic packing (bubble foil) and food foils to wrap the foodstuff



LDPE

low-density polyethylene

crushed bottles, shopping bags, highly-resistant sacks and most of the wrappings



PP

polypropylene

furniture, consumers, luggage, toys as well as bumpers, lining and external borders of the cars



PS

polystyrene

toys, hard packing, refrigerator trays, cosmetic bags, costume jewellery, audio cassettes, CD cases, vending cups



OTHER

other plastics, including acrylic, polycarbonate, polyactic fibers, nylon, fiberglass

an example of one type is a polycarbonate used for CD production and baby feeding bottles



EVALUATION

- Complete the quiz on your own and turn in when finished.