

Time	Scripting for VO	Notes
	INTRODUCTION (~ 1 ½ minutes in length)	
0:00	<p>The Earth has only so many resources to provide its inhabitants.</p> <p>Our current rates of consumption are exceeding the Earth's ability to regenerate many natural resources.</p>	
0:23	<p>Whenever something is thrown away it's like throwing away a piece of the Earth.</p> <p>Think about all the pieces of the Earth you use every day.</p>	
0:28	<p>There is a better way to deal with waste and you probably do it every day.</p> <p>It's called RECYCLING.</p>	
0:35	<p>Whether it comes from your home, work or school, your mixed recycling ends up at a Material Recovery Facility, often called a MRF.</p>	
	<p>The MRF sorts everything into separate materials and removes things that don't belong.</p>	
	<p>The separated materials go on to be remade into new products.</p>	
	<p>Let's take a look at five materials commonly received at a MRF: paper, aluminum, steel, plastic and glass.</p>	
	MRF	
1:07	<p>Remember, the recycling you put out at the curb comes into the MRF all mixed together.</p>	
1:16	<p>And it must be sorted. In order to get the best results, a combination of hand-sorting and machine-sorting is used.</p>	
1:30	<p>In a typical MRF, the mixed recyclables are fed onto conveyer belts where the first material separated is cardboard.</p> <p>Notice how the machine sends the cardboard onto another conveyer, while the other materials drop through the screens.</p> <p>Workers are waiting to pick out the few non-cardboard items that accidentally make it though.</p>	
1:46	<p>After the cardboard has been removed, the paper is separated from the metal and plastic.</p> <p>Notice how air jets blow the paper onto the top conveyer belt, while the metal and plastic drop down to the lower conveyer belt.</p>	
2:04	<p>The paper then passes under rotating magnets which pick out any tin cans or other steel materials that still made it through.</p>	
2:09	<p>Next, an "Eddy-current separator" uses electrically charged currents which literally eject aluminum cans from</p>	

	the conveyer.	
2:15 – 2:42	Now that all the recyclables have been separated, they are compacted into bales for efficient transportation to markets.	
2:42 – 2:52	Contamination is a problem for all recycling programs. This means materials that aren't recyclable or should be collected separately like glass, have been mistakenly included. If you're not sure what is recyclable in your community, check with your hauler.	
	PAPER	
2:57	We're now going to look at how the 5 commonly recycled materials are made into new products. Let's start with paper.	
3:01 – 3:09	Producing new paper from recycled material saves 40% of the energy it takes to make it from trees.	
3:10	At the mill, the paper bales from the MRF are broken apart and pushed onto a conveyer belt that drops the paper into a hydropulper.	
3:16	A hydropulper is like a giant blender that breaks the old paper down into a slurry, called pulp, which is more than 90% water.	
3:25	Wood chips are processed and added to increase strength. Detergents and chemicals are added to the pulp to dissolve and carry away the ink and to bleach the pulp to make its color brighter.	
3:34	Recycled pulp requires far fewer of these chemicals.	
3:35 – 3:45	The pulp is sprayed onto giant felt rollers where most of the water is removed.	
3:46	By the time the pulp mixture gets to the end of the belt, it's solid enough to be lifted off and fed through steam-heated rollers. These further dry and flatten the pulp into a continuous sheet of paper.	
3:49 – 3:50	The paper is trimmed so that the edges are smooth and then it is threaded onto huge rolls called logs. These logs can weigh up to 5 tons!	
3:51	Each log is cut into smaller rolls that are sent to the manufacturers who make the products we buy.	
4:00	Here are some examples of products made from recycled paper.	
	ALUMINUM	
4:16	Producing new aluminum from recycled materials saves 95% of the energy that it takes to make it from mineral ore.	
4:22	At the smelter, the aluminum bales are broken open and melted at 1, 220 degrees Fahrenheit for up to 18	

	<p>hours. During this time the impurities are removed.</p> <p>The molten metal is then poured into forms and allowed to cool.</p>	
4:34	The metal is flattened into sheets, then rolled into large spools which are sent to a can manufacturer. There a machine punches out can "preforms".	
4:56	These preforms are placed on a cylinder and forced through a series of rings, stretching the walls of the can to their final shape.	
5:09	The fully formed cans are then loaded onto conveyer belts for labeling.	
5:28	Then they are stacked onto pallets ready to be shipped to beverage distributors.	
5:43	Here are some examples of products made from recycled aluminum.	
	PLASTIC	
5:59	Producing new plastic from recycled material saves 33% of the energy required to manufacture it from fossil fuels, primarily natural gas and oil.	
6:08	<p>At the plant, the bales of plastic are broken apart and sorted by the type of resin they are made from.</p> <p>There are hundreds of different kinds of plastic, more than 46 of which are in common use.</p> <p>Just by looking at the plastic container, a person may be unable to distinguish its chemical properties.</p> <p>The numbers 1 – 7 on the bottom of the container identify the resin type, but don't tell you whether or not the container is recyclable in your community.</p>	
(New footage)	<p>Once the plastics are separated, they are chopped into small flakes, washed to remove contaminants and formed into pellets.</p> <p>These pellets are the raw material used to make new plastic products.</p> <p>There are several methods used to make plastic products.</p> <p>Let's take a look at how plastic bottles are made.</p>	
6:24	<p>The plastic pellets are first loaded into a hopper, then fed into an extruder, which is a long, heated chamber that melts the plastic and moves it through with a continuously revolving screw.</p> <p>At the end of the extruder, the molten plastic is forced out through a small opening into a series of molds to create what are called preforms.</p>	
6:45	After cooling, the molds open and the preforms are ejected.	

6:57	To complete the bottle making process, the preforms are inverted into a chilled mold. Using heated, compressed air, the preform is blown to conform to the shape of the mold.	
7:19	The finished bottles move down the line to be labeled and readied for shipment.	
7:28	Here are some examples of products made from recycled plastic.	
	STEEL	
7:44	Producing new steel from recycled materials saves 74% of the energy it takes to make it from mineral ore.	
(New footage)	Your family recycles steel too when they recycle "tin" cans. Tin cans are actually 99% steel with only a thin coating of tin to protect their contents.	
8:15	Your tin cans are combined with other steel products at a smelter where they are melted at temperatures up to 1500 degrees At this high temperature, impurities such as paper labels, paints and inks are burned off.	
8:34	To make a can, molten steel is extruded into bars that are flattened, cooled and pressed into sheets which are rolled onto large spools.	
8:45	From these spools, the sheet is then cut into blanks.	
9:02	A protective coating is applied.	
9:33	The blanks are formed into cylinders and soldered. The bottom of the can is applied and the sides are crimped for added strength.	
9:37	The finished cans are then readied for shipment.	
9:46	Here are some examples of products made from recycled steel.	
	GLASS	
10:03	Producing new glass from recycled material saves 30% of the energy required to manufacture it from raw materials.	
10:08	Most recycling trucks compact their mixed recyclables in order to be more efficient. This compaction breaks any glass that was mistakenly included with the paper, plastic and metal. Broken glass poses a health risk to workers and causes expensive equipment damage.	
10:12	At the recycling facility, glass is scooped from piles into equipment that breaks the glass into small uniform pieces called "cullet".	
10:30	The glass is then washed to remove residue and dirt that could cause imperfections in the new glass.	

	It is then screened to remove contamination. Magnets remove metal rings and caps while vacuums pull out unwanted plastic.	
10:43	The cullet is fed into a 2200 degree Fahrenheit furnace. Soda ash and limestone have been added for stability and to lower the melting point.	
10:53	In the glass forming machine, compressed air pushes globs of molten glass down into molds.	
11:00	Glass must be cooled slowly or it will shatter. These bottles appear red because they are so hot. After cooling, they will actually be brown. (Full 2 second pause) Glass manufacturers can make different colored glass by adding small amounts of other substances such as iron, copper and cobalt.	
11:23	These green glass bottles for instance are made by adding iron.	
11:29	The finished bottles are readied for shipment.	
11:34	Here are some examples of products made from recycled glass.	
	CONCLUSION (~1 minute in length)	
11:39	We've made many advances in how to recycle our Earth's limited resources.	
	We continue to explore new ways everyday to live well without taking more than our planet has to offer.	
	It's important that we also remember to reuse what we already have and to use only as much as we need.	
	You can help! Before you buy something new, ask yourself "Do I really need this?" "Does it have recycled content?" Is there too much packaging?" Can I rent it or borrow it from a friend?" "Can it be repaired?"	
	Remember, future generations are depending on the choices you make today.	.

