Magic Suitcase

Lynda = Black
June = Red
Linda = Blue

Hello! My name is Lynda and these are my partners, Linda and June. We are here today as members of ADDC. This is an international association whose members all work in or are interested in the oil and gas and related industries. Our chapters meet monthly to learn as much as we can about our industry so that we can use that knowledge in our jobs and to pass on what we learn to others like you.

And this is our Magic Suitcase. It is a treasure chest of Petrochemical Products. We are going to use this magic suitcase today to talk about all of the things that are made from oil and gas and how very important these things are to us in our life every day. We will also talk about how important recycling and being kind to our environment is.

Before we start though, we have a surprise for you – a treat! We got permission from your teachers to give each of you a piece of gum to chew while we are here. There are only two rules: #1 – No chomping or bubble blowing and #2 – the most important is that you keep the wrapper so that at the end of our presentation you can wrap up your gum and throw it away

in the trash can before you leave the room. That way we aren't taking a chance that it will end up on the ground or on the bottom of someone's shoe. That is being kind to the environment!

Remember I said our suitcase was a treasure chest of Petrochemical Products? Well, just what are petrochemicals? Let's find out!

One 42 gallon barrel of oil creates 19.4 gallons of gasoline. The rest (over half) is used to make petroleum based products. When oil and gas comes out of the ground it is usually wet with a lot of liquids & oil is dirty, so we have to clean them up before we can use them in our homes, cars, airplanes, etc. To do this, they sometimes heat it or cool it. This is called refining. When they refine oil and gas, they separate it into other products, like POLYMERS, ETHYLENE, PROPOLENE, AND BENZENE, all just fancy words for different kinds of petrochemicals.

They used to just throw these other products away, but then we became concerned that that wasn't being kind to our environment. So scientists began looking at ways to take all these petrochemicals and turn them into solids. Those solids are used to make thousands of products that you and I use every day from morning 'til night. We are going to talk about these petrochemicals a lot today.

(Hold up photo of pump jack) Where does oil come from?

Have you ever seen one of these? This is just one of the machines that a company may use to bring the oil and gas to the surface. These tubes go deep into the ground and suck the oil and gas out, kind of like using a straw! (Suck annoyingly on a straw in a cup with a little water in it)

(Show photo of gas unit) And this is a picture of what we in the industry call a "Christmas Tree". I guess it got that name because of its shape and all the ornament looking things and wires on it. But it is actually a gas well with the measuring equipment and valves used to monitor the production of gas.

(Show samples of oil) When oil comes out of the ground it is all different colors. Sometimes it is yellow and very thin like this one. Sometimes it is a little darker. Sometimes it is thick and very dark like this one. Sometimes it comes out mixed with water. The oil is lighter than water so it floats on top like this one. That makes it easy to separate the oil from the water. Sometimes the water is very salty and we can't use it for anything so we usually put it back in the ground where it came from. Sometimes though, the water is very good and ranchers and farmers use it to water their cattle and other livestock and even their crops.

Now, let's get started learning about all the ways we use these petrochemicals every day.

What is the very first thing you hear of a morning? (Set off alarm clock) Yes, your alarm clock. Well, your parents probably hear the alarm clock and then they wake you up and tell you to get out of bed or you are going to be late for school. Did you know that your clock is really made from oil?

Your mom probably tells you to make your bed when you get up. (Hold up pillow, pillowcase, fleecy blanket) Your mattress and the pillow you sleep on are made of FOAM, which is a petrochemical. Even your sheets and pillowcases are made with a petrochemical woven into the cloth to keep them smooth and wrinkle free. And your warm and fleecy blanket is probably made with ACRYLIC, which is also a petrochemical.

Acrylic is used to make a lot of other things too (Hold up sweater, fake fur, fuzzy house slippers and stuffed animal). Sweaters, fake furs and even fuzzy house slippers and your stuffed animals are all made of acrylic too.

(Hold up carpet) The carpet you walk across when you jump out of bed in the morning is made of NYLON, another petrochemical. Moms and Dads love this kind of carpet because it won't stain or burn very easily.

(Hold up light switch and wiring) The light switches in your houses are a petrochemical product. The wiring for the lights is coated with a petrochemical.

Light bulb Joke: Do you know how many parents it takes to change a light bulb? It wouldn't take any if you silly kids would remember to turn out the lights when you leave a room. More of a parent joke, huh?

(Hold up PVC pipe and detergent bottle) The pipes that bring water into the bathroom, kitchen and laundry room in your house are made from petrochemicals. The detergents you wash your clothes and dishes with are made out of oil and even the containers they come in are petrochemicals.

Can you guess some of the things that are in your bathroom when you go there to get ready for your day that are petrochemical products?

Pause for interaction with class – (Show props as they guess: shower curtain, hairbrush, toothbrush, toothpaste, hand lotion, shampoo, hairspray, gels) Even the toothpaste you brush your teeth with is made from oil! Girls, if you use hair curlers they are made from –POLYURETHANE. (Hold up Styrofoam cup, ice chest and float). Polyurethane is also used in Styrofoam cups, ice chests and floats.

Now let's get dressed. If your shoes are VINYL (Hold up vinyl shoes) that is man-made and it is made from oil. Petrochemicals affect what we wear in many different ways. I'll bet each of you in this room is wearing something made from NYLON, DACRON, ORLON, POLYESTER or some other MAN

MADE FABRIC. All of these fibers have allowed the fashion designers to manufacture many different types of clothing as you can see just by looking around you. Notice all the different kinds and colors everyone is wearing.

Now, Linda is going to show you how they can do that. Are you ready for an experiment?

Always wear gloves & glasses. Remember -- safety first. These gloves and glasses are also made from petrochemical products. Linda is holding a strip of 3 different fabrics sewn together. One is made of SILK, one is COTTON, and one is ACETATE. Silk comes from worms (Hold up picture of silkworm) and cotton we grow (Hold up picture of cotton plant) so we call them natural fibers. The ACETATE is a manmade fiber. Yes, you guessed it – a petrochemical.

Now Linda is going to put the strip of fabrics into a jar of water. What do you think is happening? Getting wet, right? Now she will transfer the strip of fabric into a jar of royal blue dye. What do you think is happening? Let's rinse it off and see. Linda is going to squeeze most of the liquid out & hold it up for you to see. The COTTON turned red from the dye, the SILK turned blue and the ACETATE, which is our petrochemical didn't change much at all. So you can see how, by using different fibers, both manmade and natural, we can produce all kinds of designs.

Petrochemicals are also used in other ways in our clothing. (Hold up pleated skirt) This pleated skirt may have been made from a combination of natural and manmade fibers and the pleats are permanent and stay in place thanks to a petrochemical called MON-ETHANOL-AMINE. That is quite a mouthful!

(Hold up Hangers) The hangers you use to hang up your clothes are coated with a petroleum based resin that gives them excellent strength.

(Hold up Sweater, Fuzzy Slippers & Leggings) This sweater is also made from ACRYLIC, but it is very different from the fleecy cloth we saw on the fuzzy slippers. However, it is still the same petrochemical – ACRYLIC. Leggings are very popular today. They combine NYLON and cotton and are very comfortable and stretchy.

Can you picture your Mom, sister or a friend walking down the street with oil all over her legs? I'll bet you have seen that many times but you just didn't realize it. But if a woman is wearing pantyhose (Hold up pantyhose), or what we used to call nylons, or tights, they are actually wearing oil on their legs, in the form of a petrochemical.

(Hold up ladies slip and boxer shorts) NYLON is also used to make underwear and lingerie. This ladies slip is made from NYLON. NYLON and POLYESTER have also entered into the

men's fashion market. Boys, if your boxer shorts are made of NYLON or POLYESTER or other manmade fiber, you are also wearing a petrochemical.

Now, once you are all dressed in the morning, you go into the kitchen for some breakfast. The kitchen has many products in it made from petrochemicals. If you open the refrigerator, you'll see PLASTIC sides and shelves and drawers. Millions of families worldwide rely on CLEAN BURNING NATURAL GAS to cook their food and heat their homes. (Hold up Styrofoam insulation) STYROFOAM INSULATION is great in building our houses, schools and other buildings because it helps conserve energy. It keeps cold out in the winter and heat out in the summer so we can use our furnaces and air conditioning less and conserve energy.

(Hold up egg carton, food container, milk carton, Tupperware bowl & melamine dish) Styrofoam egg cartons, containers that food comes in, milk cartons and even Tupperware bowls are made with petrochemicals called POLYETHYLENE or STYRENE. Some of your dishes may be made from MELAMINE. Melamine dishes are dishwasher safe – they won't melt and they are kid proof – they don't break. (Drop dish)

(Hold up plastic baggie) If you pack your sandwich for lunch in a plastic baggie, it is made from another petrochemical called POLYOLEFIN. I hope if you take your lunch to school in baggies

that you don't just throw them away!! Let me tell you about baggies. They are non-bio-degradable. They get buried and they stay there for years and years. They don't disintegrate like paper does. So let's make a deal – the next time you use baggies in your lunch and you have a peanut butter and jelly sandwich and it gets all yucky, you can throw it away in the trash. But, if you use it for cookies, crackers or potato chips, you can shake out the crumbs and reuse the baggie again next time you pack a lunch. That is recycling and being kind to the environment and that is a very good thing.

The lunch your school prepares probably has bread, green beans, corn, or even pizza sometimes. The ingredients in them are grown by farmers who use fertilizers to help them grow. Well, even fertilizer is a petrochemical! If your Mom or Dad has a patio box with tomato plants and adds fertilizer to the soil to make them grow bigger they are pouring oil on the tomatoes!

(Hold up plastic grocery bag) How many of you bring home groceries in plastic bags like this? Yes, they are made from petrochemicals. What else do you use these bags for? (Encourage discussion on what they do with these bags such as using them for trash can liners, putting wet clothes in, picking up doggie do, etc.) Again, these bags are non-bio-degradable and should be recycled as much as possible. Take them back to

the store with you the next time you get groceries and reuse them.

(Hold up Reusable Grocery Bag) Look at this bag. Stores are encouraging us to use these reusable grocery bags, which are made from petrochemicals. They are very sturdy and can be used over and over again. This helps to eliminate a lot of the plastic that goes to our dumps and is kind to the environment. Did you know that 3 billion pounds of plastic are used every year?

(Hold up soda bottle and water bottle) How many of you recycle plastic bottles when you are through with them? Great! Do you know what they can make from these recycled bottles? (Hold up Polar Fleece Hat) This polar fleece hat was made from recycled plastic bottles. (Hold up bottle of oil) It came out of the ground looking like this, they made a plastic bottle from it and then they made it into a hat or other polar fleece item to keep you warm. Now that is part of the magic of our MAGIC SUITCASE!

Now that you have finished with your breakfast, you probably go get in the car or on the bus to go to school. Look around inside and you will find that lots of the upholstery and seats are VINYL or manmade fabrics and many of the knobs and switches are PLASTIC, which are made from petrochemicals. If you ride your bicycle to school, it is made up of more than 18 different

plastics. Some offer more durability than metal. Some are used in the gears and pedals and others are elastic and make the handlebars and seats more comfortable. (Hold up safety helmet) Even your safety helmet is made from a petrochemical called POLYSTYRENE.

The tires on the car, bus and bike are also made from a petrochemical called SYNTHETIC RUBBER. The type of synthetic used in tires was developed during World War 2 when natural rubber was very hard to get. Synthetic rubber is so good that it has almost replaced natural rubber entirely. Actually, synthetic rubber is very easy to make. We have all the ingredients right here and Linda is going to show you how it's done. Are you ready for another experiment?

Linda is going to make ACEDIC ACID. Does anyone know what that is? You can probably find it in your kitchen. You might use it in your salad dressing. It is VINEGAR WATER. She is going to combine 20 ml of vinegar with 30 ml of water and shake. The next ingredient is SODIUM CHLORIDE. Any idea what that is? It can also be found in your kitchen and you might put it on your French fries. This is SALT mixed with water. Linda is going to mix 20 ml of table salt with 30 ml of hot water and shake. The last ingredient is STYRENE-BUTADIENE-RESIN LATEX. This is our petrochemical product. Linda has a beaker filled with 50 ml of SBR Latex. Next Linda is going to pour the ACEDIC ACID and

SODIUM CHLORIDE into a bowl and mix together. Now she will add the petrochemical LATEX and mix. What do you see happening? Look! She made a rubber ball! She took 3 liquids and made a solid! (Bounce old ball) This is what this one will look like once it has dried.

(Hold up balls & fishing lure) Sports balls, like golf balls, footballs, tennis, basket and soccer balls and even fishing poles and lures are all made from synthetic rubber.

(Hold up swimming suit, bicycle shorts, sandels and knee pads) Many other things are made from synthetic rubber besides tires and balls, such as swimming suits, bicycle shorts, sandels, and knee pads. And would you believe it – you're chewing on synthetic rubber! Yes, gum is made from synthetic rubber!

(Hold up Spare Tire in a Can) Here is another handy item from our Magic Suitcase – a spare tire you can hold in your hand. It has latex in it similar to what Linda used to make our rubber ball.

(Hold up Lucite Beads) Another unusual petrochemical product that we see a lot of is LUCITE. Costume jewelry, such as these beautiful beads, is made of LUCITE. LUCITE can do some amazing things.

Linda is going to perform another experiment with LUCITE.

(Have someone dim or turn off lights)

You learned in science class that light travels in a straight line. Well, with LUCITE we can bend the truth.

Linda is going to use flashlight and Lucite rod to show how light bends through the Lucite. Linda, shine the flashlight in a single straight path. Now she is going to hold the flashlight up to the end of the Lucite rod to show how it travels around the bends and comes out at the end. Isn't that awesome!

Here is a great medical aid made from petrochemicals. It is a plastic inflatable splint. (Put plastic splint on speaker's arm and blow it up while speaker finishes speaking) Suppose someone broke their arm out on the playground. The teacher or school nurse could just place this on their arm and blow it up until it becomes firm. That will stabilize the arm until they can get to the doctor. This kind of splint is safe, comfortable and easy to clean and the doctor can even take x-rays through it. (Show x-ray) This x-ray film is also from a petrochemical. They don't use these films so much anymore because now they are usually on the computer or a CD or flash drive.

(Hold up cell phone) This cell phone is made from another petrochemical product. It may have been made from a plastic called FORTICEL. Forticel can be made in many different colors and shapes.

(Hold up crayons and sticky note) While you are at school you may use a computer, crayons or write something on a sticky

note. The glue on the sticky note is made from petrochemicals and so are the computer and crayons.

(Hold up DVD) When you get home from school you may watch a DVD movie or play with your play station or go roller blading or skateboarding. Well, all of these things are made from petrochemical products.

(Hold up Mylar Balloon and Mylar Blanket) Someone in your family may have had a birthday and gotten a balloon like this one. It is made of MYLAR, another petrochemical. It is almost as strong as steel and can withstand extreme heat and cold temperatures. Firefighters use it in their firefighting gear to help protect them from the heat of fires. It is also used in fireproof clothing that is now required to be used by many employees while at work to protect them. Blankets can also be made from MYLAR. Many people keep them in their car in case they get stranded in the winter to help keep them warm until help comes. They can be found in many first aid kits. Hikers and back packers use them also because they are so lightweight.

(Show picture of Satellite) Mylar was used to make satellites that have been orbiting the earth for many years. Hundreds of other petrochemical products have been used in our space program from the cones on rockets to the Astronaut's space suits. (Show picture of Astronaut). So how high have our

petrochemicals gone? From out of the ground all the way to the moon, Mars and beyond!

(Show Mylar Log) This is one of the tools that we used in the oil and gas industry. An Engineer or Geologist might use it to try to figure out where the oil and gas is in the earth. A logging tool is put down into the ground to take a picture of what is down there and then the picture is printed out on this Mylar film. The first electric logs were made of paper and they would fade and turn yellow as they got old. These Mylar logs will last a very long time.

Well boys and girls, our Magic Suitcase is now empty, but not because we've run out of things that are made from oil and gas. It's because we have run out of space and time. There are more than 25,000 petrochemical products on the market today, with more being added all the time.

It is really magic when you stop to think about all the things around you that are made from oil and gas. You can see that if we run short of oil and gas it will sure make a big difference in our lives! That is why it is so very important to keep finding more oil and gas and especially to conserve and recycle what we already have.

Before we go, would you like to see one more experiment? OK. Well, we all know that Mother Nature makes snow. But what if I told you Linda can make some snow right here, right now with

a petrochemical? Can you imagine this black oil turning into snow? (Hold up oil) Well, Linda is going to show you how it is done.

Linda is going to spread a plastic table cloth on floor in front of the experiment table. Now, why don't you all gather around it so you can be sure to see this magic happen.

Linda is going to put 2 scoops of Instant Snow, our petrochemical, in a glass bowl. Can you see all the tiny beads? Now she is going to add ½ cup of water and stir and look! You have instant snow! Linda is going to spread the snow on the table cloth and you are invited to touch it and feel it's coldness. Linda is going to put this snow in a plastic bag and leave it with your teacher so that you can examine it or play with it more later. The instant snow is made of tiny super absorbent polymers, a petrochemical, which are long chains of molecules linked together. It's similar to the substance found in baby diapers. However, there is a difference. Instant snow not only absorbs the added water like a diaper but also expands to 100 times its normal size!

Linda, June and I would like to thank you for having us here today to share our Magic Suitcase with you. We are leaving an Energy Activity Book for each of you with your teacher. It has more information on oil and gas and some activities for you to do.

As an added treat, we are also leaving each of you a bag of M&M's. A petrochemical is what makes them melt in your mouth, not in your hands!

Now, please remember to put your gum back in its wrapper and throw it in the trash can. And be sure to throw your M&M bag in the trash can too. Be kind to the environment!

Thank you so much! We have really enjoyed being here with you today.