Tire Track Evidence Lab

Directions: Your group's job will be to identify tire tracks and match them to the vehicles provided.

Materials:
1. Blank Tire Track Challenge Sheet
2. Matchbox or Hot Wheels cars
3. Ink Pad (There are only 3, so you will have to share)
4. A copy of Tire Tracks worksheet **(give this to your group after you have printed the vehicles)**
5. Ruler
6. Paper towels

Procedures:
1. Collect materials from the front of the room.
2. Gently roll a vehicle over the ink pad several times to cover all the sides of the tires.
3. Gently roll the vehicle on the white paper for a length of 5 – 6" and label the tracks with the vehicle's letter.
4. You will want to apply enough pressure to get a good impression, but not too hard that you damage the vehicle, its tires, or the ink pad.
5. Roll the vehicle on a piece of paper towel to remove excess ink and pass it along to another group. You will need to print 8 vehicles.
6. Analyze the tire tracks to identify unique characteristics, such as blank spots, evidence of tire wear, etc. Use a colored pencil to circle each characteristic that your group finds.
7. Work with your group to identify each set of track shown on your worksheet.
8. Compare the tracks your group made and match them to the worksheet handed out by the teacher. Once you have identified all the vehicles, have your answers checked by the teacher.

Tire Tracks Challenge

Materials Needed:
8-12 toy cars (Hot Wheels or Matchbox size work best, look for
    distinct types of tires or use some tools to create your   own
wear patterns on them)
Large white construction paper
Copies of Tire Tracks worksheet
Ink pads

> **NOTE from T.Trimpe:** *I use the micropore ink pads available from Quill – Item # 901-21281. The ink pad is made from a harder material than the standard foam pads and holds up well to repeated use for this lab.*

Preparation:

1 – Label the cars with letters. As you create the original tracks in the next step, make a key for your records showing which numbers on the Tire Tracks worksheet correspond to the letters on the cars.

2 - Roll the tires of each car on the ink pad and then roll across the Tire Tracks worksheet. Be sure to label the cars to help you keep track of each set. If there is not enough space on the worksheet, make the tracks on another piece of paper and cut/paste a good sample the best tracks into the boxes.

> **NOTE from T. Trimpe:** *A sample of my Tire Track Challenge is available on page 3 of this document.*

3 - Make copies of the Tire Tracks Challenge worksheet (one per group.)

Activity Directions:

Day 1:
1 - Give each group a large sheet of construction paper along with rulers & paper towels.

> **NOTE from T. Trimpe:** *A PowerPoint to introduce the activity and challenge is available on the Forensic Science page of my website in the Impression Evidence section.*

2 - Give one car to each group and an ink pad. Allow time for each group to make a set of tracks on a plain white sheet of paper. Have the groups pass around the cars so each group has a sample for each car. Save the sample tracks for the challenge activity during the next class period.

> **NOTE from T. Trimpe:** *I set up 6 sets of cars (3 cars in each set) that can be passed around the room from group to group. You might also consider setting up stations around your room. Place a few cars and one ink pad at each station. Have the groups rotate through the stations to create their own tracks.*

Day 2:
1 - Pass out copies of the Tire Tracks Challenge page and allow time for the students to identify the tracks and then check their answers.

> **NOTE from T. Trimpe:** *I have several identification labs that are races – the first group done   receives a prize and bragging rights. I require the groups to have an answer for each item before they can check their answers the first time. I mark the ones that are incorrect and the students keep working until they get   them all correct (or until at least half of the groups are   finished.) To make it more challenging, provide more than 8 cars. The students will need to create tracks from all of the cars, but only some of them will be matches.*

2 - Discuss how tire tracks can be used to solve crimes.

> **Extension Idea from T. Trimpe**: *Thanks to Chris Taylor, my favorite mechanic, I have a set of 10 actual tire treads that I have the students use to make ink prints. They use black tempera paint (thinned with a little water) and sponge brushes to coat the tread and make prints on pieces of white paper. I hang several "Mystery Tracks" in my room that I made before class and see if the kids can match them to the real treads.*
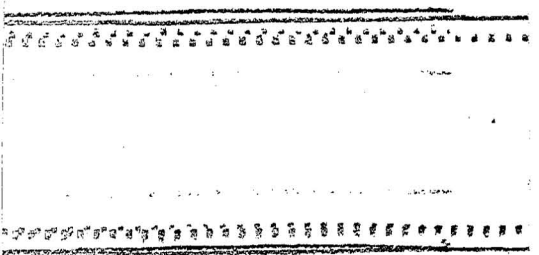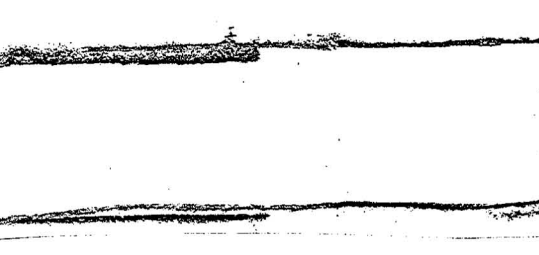
Idea submitted by Sandy Powell   *Worksheet by T. Trimpe 2007   http://sciencespot.net/*

Group Members: _____

Work with your investigative team to identify each set of tracks shown below. Use the cars provided, ink pads, and white paper to make a set of sample tracks. Compare your tracks with the ones shown below and then write the letters in each box to show the matches.

#1

#2

#3

#4

#5

#6

#7

#8

Tire Track Challenge

Group Members: _____

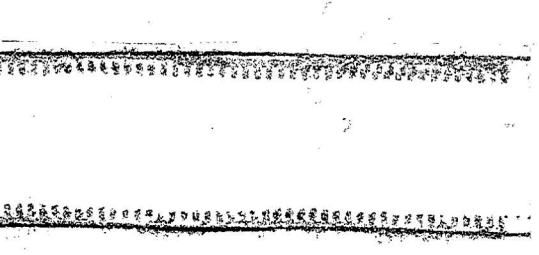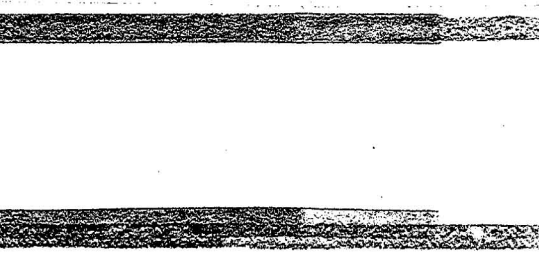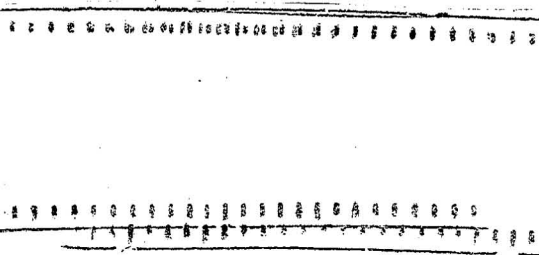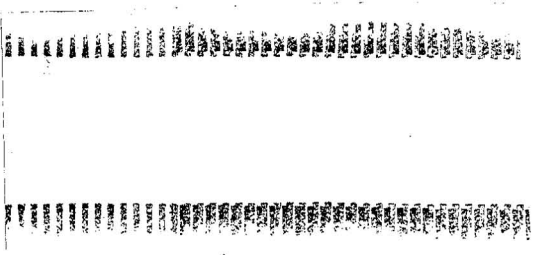Work with your investigative team to identify each set of tracks shown below. Use the cars provided, ink pads, and white paper to make a set of sample tracks. Compare your tracks with the ones shown below and then write the letters in each box to show the matches.

#1

#2

#3

#4

SAMPLE

#5

#6

#7

#8

Idea submitted by Sandy Powell   Worksheet by T. Trimpe 2007   http://sciencespot.net/