Healers who use Therapeutic Touch (TT) say that it works by smoothing out the invisible "energy field" that surrounds every person. By working out the "kinks" within this field and redirecting its energy, practitioners believe they can facilitate healing. Critics argue that there is no data to support the success of this practice and that it is another form of pseudoscience masquerading as a legitimate treatment.

Many TT skeptics believe that much of the reported success of Therapeutic Touch can be attributed to something called the "placebo effect." A placebo is an inactive substance or ineffective therapeutic practice that a subject firmly believes to have active properties. For example, an individual may find some measure of relief from a placebo purely because of his or her belief in its power. While the placebo effect arises from an individual's expectations and beliefs, it is thought that its mechanism of therapeutic action may lie somewhere in the body's natural system of self-healing.

The placebo effect often complicates the objective evaluation of new drugs or medical procedures by introducing biases into the results. In this activity, you'll get the chance to observe how belief and expectation can impact an experiment. As you'll discover, the activity will require both unsuspecting subjects and a bit of deceit.

This lesson will offer:

- Insight into placebos.
- An activity that involves belief and bias in experiments.
- An arena to apply critical thinking to Therapeutic Touch.

**MATERIALS**
Clean and unused blindfold
Tissue like Kleenex
Journal
Coin to flip easily, OR a die to roll in a box or tray

Before starting the study, set up a data table in your journal, to record results of 15 trials with subject’s eyes open, then 15 trials with subject blindfolded.
**PROCEDURE**

1. Identify several individuals who will be the subjects of your deception. Family members and friends (but not classmates) make great subjects. Do this with at least 3 people; 6 or more would be even better. Your teacher may ask you to work alone or in teams.

2. Set aside ten minutes to work with each subject. Explain that you are about to repeat a test that you observed on the show SAF (Scientific American Frontiers). You might want to tell them a little bit about the series to add credibility to your actions. Your teacher may show the video about this subject.

3. Explain that you are going to test their ability to "feel" the presence of a hand that is positioned about 6 inches above their own outstretched and upturned palms. Try to use same distance in all trials.

4. Here’s where the hoax comes in (but don’t tell anyone that it’s a hoax!). Try to be as convincing as you can when you explain that scientists have confirmed that people can detect "energy fields". Tell them it is now an accepted sixth sense that you have learned about in a segment of SAF. Although it is not as strong as the other five senses, field detection can be used to uncover an invisible aura that surrounds all animals.

5. Tell them to keep their eyes open. Flip a coin. Based on the outcome of the toss (heads = right, tails = left), position your hand above one of their upturned palms. Using a die in a box might be quieter: use odd numbers (1, 3, 5) for left hand, even numbers (2, 4, 6) for right hand.

6. Ask "Can you detect any energy field associated with my hand?" Record their response in your data table. Ask them to describe the feeling and record this response as well.

7. Flip the coin again. Based on the toss outcome, position your hand over the appropriate upturned palm either of their upturned palms. Record their ability to detect the presence of the your hand.

8. Repeat the test fifteen times. Record the results in your data table. Did they demonstrate an ability to detect these fields?

9. Blindfold the subject. Repeat those 15 tests by tossing the coin and placing your hand over the subject’s, without revealing which hand has been chosen. Record the results.

10. Repeat steps 2-9 with several other subjects, then compare your results. Do this with at least 3 people; 6 or more would be even better.

**QUESTIONS:** Copy the questions and write your answers to them in your journal. Your teacher may ask you to discuss each question with your partner or team, then your class, but record the final answer of the team (and class). In doing this, base your answers on the majority results of your several subjects, in both situations (eyes open, and blindfolded).

1. How was the bias produced in this activity?

2. Did your subjects demonstrate a bias? If so, how?

3. Why was it important to keep your hand at least several inches above the subject's hand?

4. Why was a blindfold used in the second part of this activity?

5. Did your subject's ability to "detect" the energy field change when blindfolded? In what way?