Activity: The Check Activity

Summary
In this activity, students develop a theory based on evidence they collect from (fake) cancelled checks to come up with a story of how they are related. The theory changes as new evidence is gathered, and they have to decide what data is and isn’t important.

Resource Type: Activity
Grade Level: Middle and high school

Objectives
By the end of this lesson, students should be able to
- Develop a theory
- Use evidence to back up a hypothesis

Chemistry Topics
This lesson supports students’ understanding of
- Inferences
- Scientific method
- Drawing conclusions

Time
Teacher Preparation: 10 minutes
Lesson: 1 class period

Materials
- One set of 15 cancelled checks (see PowerPoint: Checks)
- Students should work in groups of 3 or 4

Safety
No specific safety precautions are needed for this activity.

Teacher Notes
- Great early activity with students to allow them to work together. The teacher can circulate around the room and question students about the conclusions they have made.
- Students always want to know the “correct” answer at the end.
- After each group presents their conclusions:
  1. Make positive comments about each group’s conclusions.
  2. Point out that
     - science is collaborative.
     - it is important to have good note taking skills.
     - it is important to be able to interpret data.
     - it is important not to remain fixed on one interpretation of data; be flexible.
  3. Their stories may have had to be totally rewritten to include new data that was collected. That is actually a part of doing good science: changing theories to include and account for all known information.
FOR THE STUDENT

Student Activity Sheet: Check Activity

Lesson
In groups of three or four, assign to the following roles:

   **Leader:** keeper of the data
   **Time keeper:** responsible for keeping the discussions on time
   **Recorder:** note taker of the group discussion
   **Reporter:** summarizer of the group’s findings to the class

**If you’re working in a group of three:** the time keeper will also be the reporter

1. You will receive a grade for this exercise and total group participation is a large part of the grade.
2. The envelopes contain relevant data. Only the group leader will handle the data.
3. **Remove ONE check from the envelope.** As a group, discuss the information that you can learn from the check. The recorder should record any important conclusions.
4. **Remove three additional checks** and develop a hypothesis that ties together the four pieces of data. You have 10 minutes. The time keeper will alert you when your time is up for discussion. The recorder should record important points from the discussion and write the clear hypothesis the group comes up with by the end of the 10 minutes.
5. **Remove three more checks** and include all available data in a revised hypothesis. You have eight minutes. The time keeper will alert you when your time is up for discussion. The recorder should record important points from the discussion and make any necessary changes to the hypothesis by the end of the eight minutes.
6. **Remove four more checks.** These are the last pieces of data that you will collect, even though there are more checks in the envelope. You have 10 minutes to get all the details arranged. The time keeper will alert you when your time is up for discussion. The recorder should make sure all important points from the discussion have been recorded and a final conclusion has been drawn.
7. **The reporter** will deliver a clear summary of your group’s conclusions when it’s your group’s turn in the all-class discussion.
8. The leader should return all data in their original envelopes, without looking at the remaining bits of data.