

# Disturbing Equilibrium

## Summary

Students will determine the effect of altering various ion concentrations on the iron (III) thiocyanate equilibrium system.

## Main Core Tie

Science - Chemistry

[Standard 5 Objective 2](#)

## Time Frame

1 class periods of 90 minutes each

## Group Size

Small Groups

## Materials

- [student worksheet/instructions](#)

(attached)

FeSCN<sup>2+</sup> equilibrium (prepared by combining 2.5 mL of 0.2 M Fe(NO<sub>3</sub>)<sub>3</sub> (aq) and 2.5 mL of 0.2 M KSCN and then diluting with approximately 100 mL with distilled water

5 test tubes per group/ test tube rack

0.2 M Fe(NO<sub>3</sub>)<sub>3</sub> (aq) in dropper bottles

0.2 M KSCN (aq) in dropper bottles

6.0 M NaOH in dropper bottles

Crystals of Na<sub>2</sub>HPO<sub>4</sub>

## Background for Teachers

### Safety considerations:

Safety goggles and standard chemical handling rules apply.

## Instructional Procedures

Prepare the solutions and gather lab materials.

Present some examples of Le Châtelier's Principle from chemistry and from the students reality.

Ex. A group of 3 students is standing in the hall talking. 5 more students join the group. What is most likely to occur? (some students will drift away or form a new group)

Describe that the reaction chosen for this activity has color indicators that help understand which side of the equation the reaction has moved toward.

Allow students time to work. Have student groups compare lab results before answering questions.

Assign student groups different reactions from the lab to model with colored paper (red on one side, yellow on the other) have them move from side to side of the "reaction" as the changes in equilibrium are made.

## Bibliography

Lesson Design by Jordan School District Teachers and Staff.

Authors

[Utah LessonPlans](#)