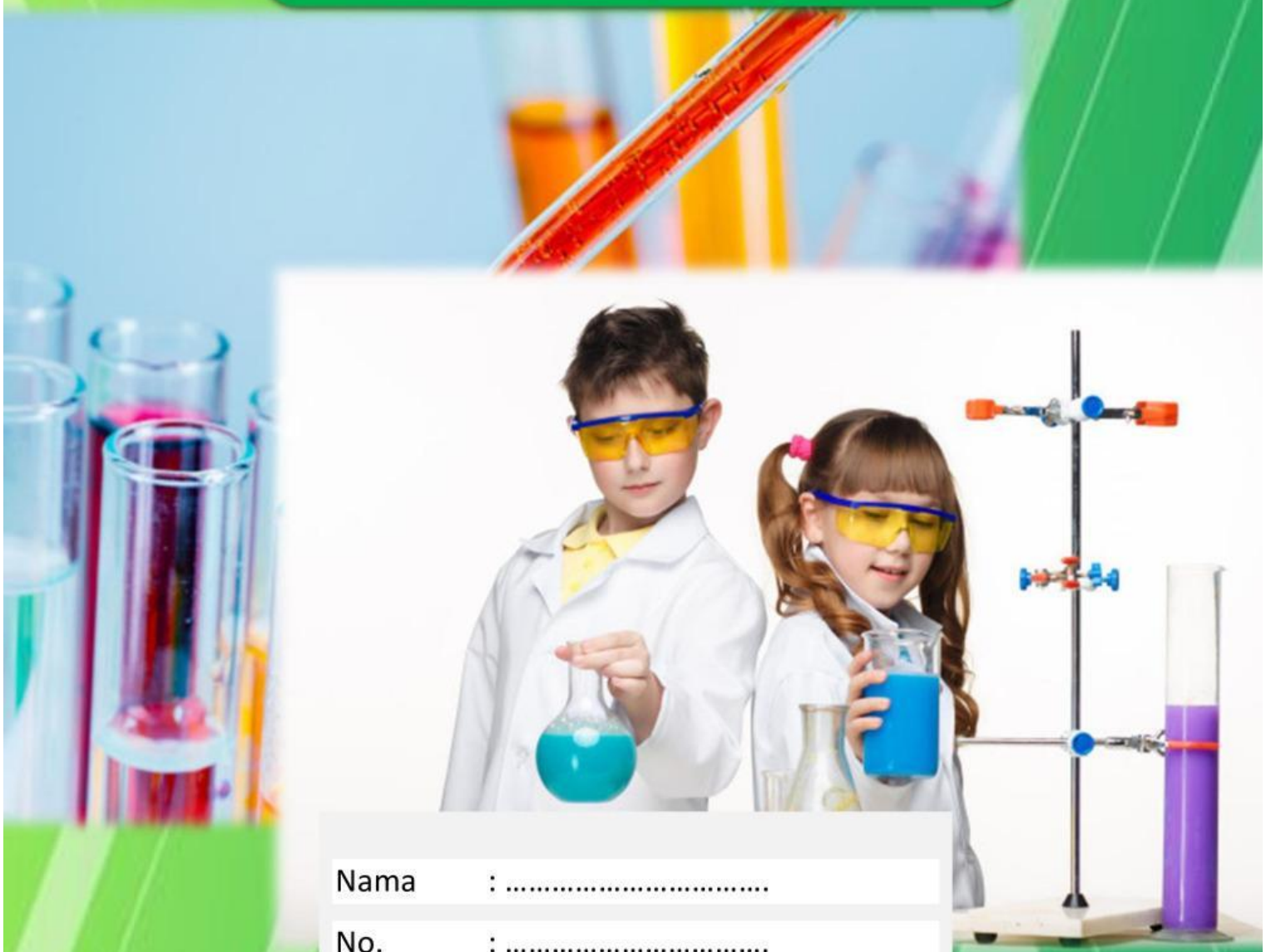
CHEMICAL EQUILIBRIUM
(KESETIMBANGAN KIMIA)



Nama : .....

No. : .....

Kelas : .....

Kelompok : .....

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EQUILIBRIUM SHIFT

Instructions for Using LKPD

1. Each group must read and understand the LKPD carefully
2. Discuss each problem in the LKPD with each group member.
3. Ask the teacher for help if there is something that is not understood and is not clear.
4. Work on the questions in the LKPD with the correct answers.
5. Make a practicum report at the end of the lesson

Activity 1

Equilibrium Shift Experiment

STIMULATION

A. Objectives

✓ The objective of this experiment was to study the shift of equilibrium between ferric ions and thiocyanate ions by increasing the concentration of either of them.

B. Tools and materials

Tool:

- Beaker glass 150 mL
- Stirrer
- Dropper pipette
- Test tube

Material:

- 5 ml of water
- 5 ml of 0,1 M $FeCL_3$ solutions
- 5 ml of 0,1 M KSCN solutions
- 5 ml of 0,1 M KCl solutions

C. Method

1) 10 ml of 0.1M $FeCl_3$ solution in a measuring cylinder was poured into a clean beaker.
2) To this clean beaker, 10ml of 0.1M KSCN was added using a measuring cylinder.
3) A deep red colour was obtained due to the formation of the complex $[Fe(SCN)\ (H_2O)_5]^{2+}(aq)$.
4) The solution with the deep red colour was then diluted by adding 50ml of distilled water.
5) Four test tubes were then labelled A, B, C and D.
6) 10 ml of the deep red solution was then added to each test tube using a measuring cylinder and the test tubes were placed on a tube stand.
7) 5ml of distilled water was added into test tube A; 5 ml of 0,1M $FeCl_3$ solution was added into test tube B; 5 ml of KSCN solution was added into test tube C and 5 ml of 0.1M of KCl solution was added into test tube D.
8) The test tubes were well shake then the intensity of the colours in test tube B, C, and D were compared to the red colour in test tube A which was taken as the reference test tube.

PROBLEM STATEMENT

D. Problem statement from students

Write the problems you found in the experiments that have been carried out!

DATA COLLECTION

E. Observation data

Test Tubes	Substance added at Equilibrium	Change in Color	Effect the concentration of $[Fe(SCN)(H_2O)_5]^{2+}$	Shift of Equilibrium
A	5 ml of water			
C	5 ml of 0,1 M $FeCL_3$ solutions			
C	5 ml of 0,1 M KSCN solutions			
D	5 ml of 0,1 M KCl solutions			

F. Questions

Fill in the following questions with the correct answers!

DATA PROCESSING

1. How does increasing the concentration of one component affect the equilibrium system?

2. How does reducing the concentration of one component affect the equilibrium system?

3. How does changing volume affect the equilibrium system?

VERIFICATION

Students do a presentation in front of the class.

GENERALIZATION

G. Conclusion

Based on the experiments and materials presented today, the following conclusions can be drawn:

1. Le Chatelier's principle states
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2. The effect of concentration on chemical equilibrium
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3. The effect of volume on chemical equilibrium
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4. Write the equilibrium reaction equation
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☺ GOOD LUCK ☺