

Student test performances on behavior of gas particles and mismatch of teacher predictions

Jia-Chi Liang, Chin-Cheng Chou and Mei-Hung Chiu

Published in *Chemistry Education Research and Practice* (2011) Vol. 12, no. 2,

Test items used in this study

Step 1:

The Question 1

Container A is connected to Container B through a horizontal and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?

A: H₂ 1atm
B: O₂ 1atm

Show the choices

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Step 2

The Question 1

Container A is connected to Container B through a horizontal and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?

A: H₂ 1atm
B: O₂ 1atm

(1) [Diagram: H₂ in A, O₂ in B]
(2) [Diagram: H₂ in B, O₂ in A]
(3) [Diagram: H₂ in A, O₂ in A]
(4) [Diagram: H₂ in B, O₂ in B]
(5) None of the above. (Please draw your idea on the paper.)

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Step 3

The Question 1-reason

Container A is connected to Container B through a horizontal and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?

A: H₂ 1atm
B: O₂ 1atm

WHY?
Write down on the paper

Your choice is shown below:

[Diagram: H₂ in A, O₂ in B]

Back to Q1 NEXT

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There were similar three steps for Items Q2-Q6, and therefore, we only present the second step as follows.

● The Question 2

Container A is connected to Container B through a vertical and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?

(1) (2) (3) (4) (5)

None of the above.
(Please draw your idea on the paper.)

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● The Question 3

Container A is connected to Container B through a vertical and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?

(1) (2) (3) (4) (5)

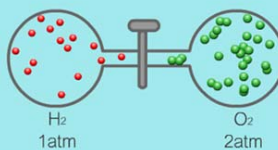
None of the above.
(Please draw your idea on the paper.)

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● The Question 4

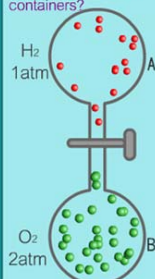
Container A is connected to Container B through a horizontal and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?



- (1)
- (2)
- (3)
- (4)
- (5) None of the above. (Please draw your idea on the paper.)

● The Question 5

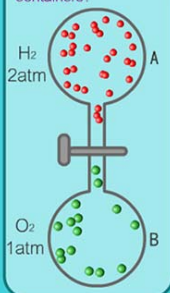
Container A is connected to Container B through a vertical and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?



- (1)
- (2)
- (3)
- (4)
- (5) None of the above. (Please draw your idea on the paper.)

● The Question 6

Container A is connected to Container B through a vertical and narrow tube. When the stopcock has opened after 10 minutes, what is the distribution of the particle in the containers?



- (1)
- (2)
- (3)
- (4)
- (5) None of the above. (Please draw your idea on the paper.)