Advance HE Surveys Conference
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PERSONALIZED EDUCATION USING COGBOOKS ADAPTIVE LEARNING TECHNOLOGY

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What is Adaptive learning?

Adaptive Learning software monitors student performance and personalises what is presented to each student based on these observations.

The software offers different content to learners based on an interactive assessment of where they are in their understanding of the content.

Provide an effective e-learning experience by adapting to meet the specific educational needs of each individual student.

Deliver a genuinely personalised learning experience.
The potential advantages of this type of system is that they:

Allow students to skip redundant material for topics they are competent in.

Provide extra material for topics a student is struggling with.

Provide a detailed record of achievement and engagement for each student.

Promote sustained engagement by delivering course materials that allow students to work at their own pace and to the depth, they need.
The linear approach has a number of drawbacks:

If the student already knows part of a course, they still have to work through every step, which can waste time and decrease engagement.

If the student has problems at any point, there is no immediate help available.

Often results in short learning experiences that are self-contained and not built upon in the future.

Learning is not one size fits all.
The benefits of adaptive learning:

1. Students progress faster and higher.
2. Allow students to progress at different rates.
3. Improve lecturer management of progression.
4. Curricula is optimised to student experience.
CogBooks Personalised Adaptive Learning Network

1. Define Learning Outcomes
2. Develop Learning Map
3. Build Course
2nd year core 6F5Z2006 unit Chemical Concepts 1

113 students (68 male and 45 female)

Significant theory content: Transition Metals

Once a week for a 60 min lecture

Once a fortnight for a 60 min tutorial
6F5Z2003 unit Chemical Concepts 2

22 students (9 male and 13 female)

Significant theory content: Transition Metals

FdSc Chemical Science

Online distance learning part-time course
This structural distortion destroys the cancer cells' ability to reproduce by changing the configuration of their DNA. Cisplatin binds to two sites on a strand of DNA, causing it to bend about $33^\circ$ away from the rest of the strand.
cis-[Pt(NH$_3$)$_2$Cl$_2$]
CISplatin
Injection
50 mg/50 mL

FOR IV USE ONLY 1 mg/mL Aquagen 14 mg/mL 15 mg/mL 16 mg/mL 18 mg/mL

CISplatin doses greater than 100 mg/m² once every 2 to 4 weeks are rarely used.
See package insert.
Tran Metals 3.2.2: Geometric Isomers of Octahedral Complexes.

Geometric Isomers of Octahedral Complexes

CIS and TRANS geometric isomers may also be drawn with octahedral complexes with the general formula \([MA_4B_2]\), for example the CIS and TRANS isomers of the \([\text{Co(NH}_3]_4\text{Cl}_2]\) complex are shown below:

![CIS and TRANS isomers of \([\text{Co(NH}_3]_4\text{Cl}_2]\)](image)

- *cis*-\([\text{Co(NH}_3]_4\text{Cl}_2]\): Violet
- *trans*-\([\text{Co(NH}_3]_4\text{Cl}_2]\): Green

The two geometric isomers shown above are different colours, where CIS is Violet and TRANS is Green, illustrating how isomerism can affect the physical properties of the complex.
L2.7 Geometric Isomers

cis-[Co(NH₃)₄Cl₂]  Violet

trans-[Co(NH₃)₄Cl₂]  Green

Are these additional geometric isomers of [Co(NH₃)₄Cl₂]?
Please answer the following questions:

1. How many isomers are possible for the octahedral complex $[\text{Fe(NH}_3)_4\text{Cl}_2]$?
   - a. ONE
   - b. TWO
   - c. THREE
   - d. FOUR

2. Fac- and Mer- isomers are examples of?
   - a. optical isomers
   - b. structural isomers
   - c. coordination sphere isomers
   - d. geometric isomers

3. Which of one the following complexes CAN, in theory, have Mer and Fac-isomers?
   - a. $[\text{Ni(en)}_2(\text{H}_2\text{O})_2]^{2+}$
   - b. $[\text{Cr(acac)}_3]$
   - c. $[\text{RhCl}_3(\text{NH}_3)_3]$
   - d. $[\text{CrCl}_3(\text{H}_2\text{O})_4]^+$
Next in your personalized learning path

Recommended because you appear to need more help with TranMetals 3.2.2: Geometric Isomers of Octahedral Complexes.

TranMetals 3.2.2(b): ChemWiki for Geometric Isomers of Metal Complexes
A summary of geometric isomers formed by transition metal coordination complexes.

TranMetals 3.2.2(c): Geometric Isomers of Complex Diastereomers Video.
This video looks at the features of geometric isomers for transition metal complexes.

TranMetals 3.2.2(d): Stereoisomers Fac/Mer Complex Ions Video.
An explanation of a sub-group of geometric isomers for octahedral complexes called Fac or mer.

TranMetals 3.2.2(e): How to Assign Cis/Trans and Fac/Mer Isomerism Video.
An explanation of how to assign Cis, Trans and Fac, Mer isomers.

Use this field to submit questions for your instructor regarding the content you reviewed.
If none of these look like they will be useful for you.

Your question will go to your instructor for this course

Write your question here.

Send
### Transition Metals > Performance Dashboard

**Select a Module**

<table>
<thead>
<tr>
<th>Module Description</th>
<th>Concept Status</th>
</tr>
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<tbody>
<tr>
<td>Normal</td>
<td>Completed</td>
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<tr>
<td>Question</td>
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<tr>
<td>Completed</td>
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<tr>
<td>Need Revision</td>
<td>Completed</td>
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<tr>
<td>Path Changed/Reset</td>
<td>Completed</td>
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#### Group Progress

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<tr>
<th>Group</th>
<th>Concept Types</th>
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<tr>
<td>MMU_CB_LT1_10010</td>
<td>Completed</td>
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<tr>
<td>MMU_CB_LT1_161216</td>
<td>Completed</td>
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<td>MMU_CB_LT1_167005</td>
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<tr>
<td>MMU_CB_LT1_170458</td>
<td>Completed</td>
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<tr>
<td>Question</td>
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<tr>
<td>-------------------------------------------------------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>Would you like to have CogBooks for other units you are studying?</td>
<td>86%</td>
</tr>
<tr>
<td>Would you like to upload your own content to CogBooks to share with other students?</td>
<td>32%</td>
</tr>
<tr>
<td>Would you have liked any additional content in CogBooks?</td>
<td>48%</td>
</tr>
<tr>
<td>Was any of the CogBooks content difficult to follow or confusing?</td>
<td>8%</td>
</tr>
<tr>
<td>CogBooks gave you useful feedback after answering a quiz?</td>
<td>70%</td>
</tr>
<tr>
<td>You accessed the CogBooks resources during your revision for the exam?</td>
<td>87%</td>
</tr>
<tr>
<td>The CogBooks content helped with concepts and difficult topics?</td>
<td>85%</td>
</tr>
<tr>
<td>CogBooks helped you obtain a deeper understanding of the subject?</td>
<td>87%</td>
</tr>
<tr>
<td>CogBooks directed you to useful content?</td>
<td>82%</td>
</tr>
<tr>
<td>You were able to explore the subject materials easily using CogBooks?</td>
<td>72%</td>
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STUDENT COMMENTS:

“I am very good at retaining information but understanding the theory is different, this helped me to learn things I found difficult.”

“I liked that the CogBooks gave you your individual learning path based on what questions were answered incorrectly.”

“The CogBooks have a short compressed lecture with rich questions, so as to focus learning more precisely.”

“If you didn’t get a perfect score on the quizzes, you were shown a screencast on that topic area, which was really helpful.”
“I found the organized bite-sized chunks really useful to understand individual concepts at my own pace and it felt intuitive.”

“The way it broke down topics helped make sure you got the background you needed to answer harder questions and it definitely built the topics slowly and clearly.”

“The quizzes were very useful to test if you had retained the knowledge from the lectures.”

“The materials were laid out in a logical order building on knowledge previously covered and explanations were clear with difficult points explained in the right amount of detail at the right speed.”
"Empty your mind, be formless, shapeless - like water. Now you put water into a cup, it becomes the cup, you put water into a bottle, it becomes the bottle, you put it in a teapot, it becomes the teapot. Now water can flow or it can crash.

Be water
My friend

[Signature]