- **Communication about literacy focus lesson to colleagues (2021)**

applicant

[redacted] 04/11/2021 9:57 am 2

08 Science - I have put the lesson I am running on describe vs. explain cognitive verbs in the teacher OneNote in Revision - I will do this tomorrow along with content revision, if anyone has any issues with the lesson content in relation to the exam then please let me know before tomorrow.

colleague [redacted] 04/11/2021 10:26 am 2 1

applicant This looks great [redacted] - thank you! When you refer to the handout at the start, are you just using a plain/lined piece of paper or is there a specific handout that you're referring to?

colleague 08 Science - FYI, [redacted] is organising printing of the exam & room changes - thank you [redacted] colleague

applicant [redacted] 04/11/2021 10:26 am 1

colleague Just added it [redacted]

2.5 – support colleague to implement literacy strategy

colleague [redacted] 04/11/2021 11:39 am

applicant [redacted] Can I observe you doing the Writing Practice lesson? I want to do it P4 tomorrow. I love the table structure of working out if you have just described or explained. If quantities were added to the diagram then the "how many" column would have entries. Adding an example with quantities would be great.

applicant [redacted] 04/11/2021 12:56 pm

colleague Sure [redacted] I am doing it in P3 tomorrow if that suits you (I22). The idea of "how many" is a great one, and relates to SIS questions, I will add a thinking question in about "what if there were energy values on the diagram?". Thanks!

- **Assessment literacy focus lesson created and shared with colleagues**

Teacher 08 Science 2021 | Administration | Lesson Content | Revision | After the exam | +

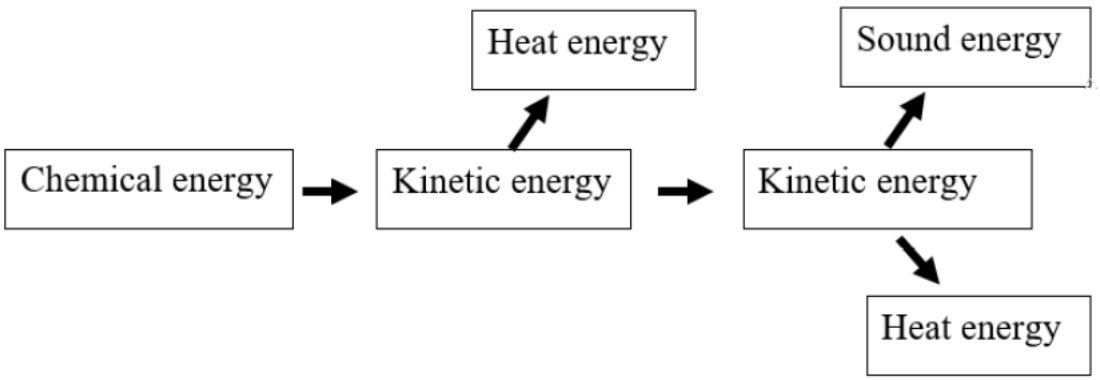
Cognitive verbs & exam answer writing

Sunday, 31 October 2021
3:20 PM

Activity:

- ☐ Explain, in full sentences, the energy transformations and transfers that occur when you are riding a pushbike (use the handout provided). When you are finished, set it aside for now.

Figure 1: Riding a pushbike



Cognitive verbs

Cognitive verbs indicate the mental process/operations that are to be performed and are **used in all assessment types**.

Two common cognitive verbs in exams are:

2.5 – teaching strategy for literacy development

- **Explain**- make an idea or situation plain or clear by describing it in more detail or revealing relevant facts; give an account; provide additional information

← Usually under A level criteria

- **Describe**- give an account (written or spoken) of a situation, event, pattern or process, or of the characteristics or features of something

← Usually under C or D level criteria

	A	B	C	D	E
Science Understanding	Identification of different forms of energy in simple and complex systems Explanation of how energy transfers and transformations cause change in simple systems, with progress towards some that are complex	Identification of different forms of energy in simple systems Informed description of how energy transfers and transformations cause change in simple systems	Identification of different forms of energy Description of how energy transfers and transformations cause change in simple systems	Recall of different forms of energy Identification of energy transfers and transformations in simple systems	Statements about energy transfers and transformations

We can use **noun groups** to show the difference between a 'describe' (C level) response and an 'explain' (usually A level) response.

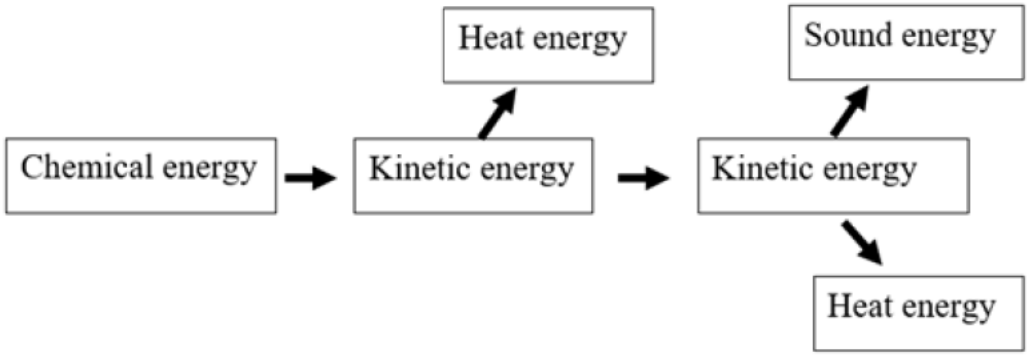
Noun groups are groups of words that come in six types and tell us:

1. Which one
2. How many
3. What quality
4. What type
5. Thing
6. What else

2.5 – teaching strategy for literacy development

Example of a 'describe' response

Figure 1: Riding a pushbike



Pushbikes move using chemical energy to make kinetic and heat energy. Kinetic energy from the person makes kinetic energy in the wheels. Sound and heat energy are also made.

This is very low C level. It describes the main features of the image but doesn't include additional information.

Noun groups used in the above response:

Which one	How many	What quality	What type	Thing	What else
				pushbikes	
			Chemical	energy	
			Kinetic and heat	energy	
			Kinetic	energy	from the person
			Sound and heat	energy	in the wheels

We need to include more information (explanation) in our noun groups to get A and B level responses.

2.5 – teaching strategy for literacy development

Example of an 'explain' response

A person riding a pushbike along the road transforms chemical potential energy from food into kinetic energy when they use their muscles to push on the pedals. Chemical energy is also transformed into heat energy from this effort. The kinetic energy from their feet pushing on the pedals is transferred to kinetic energy which moves the wheels. Some of that kinetic energy may be wasted as heat energy or sound energy due to friction between the tyres and road.

This is A level. It describes Figure 1 in detail, provides additional information and reveals relevant facts.

Noun groups used in the above response:

Which one	How many	What quality	What type	Thing	What else
A				person	riding a pushbike along the road
			Chemical potential	energy	from food
	These two	*columns*	Kinetic	energy	when they use their muscles to push the pedals
	often end	*up blank*	Chemical	energy	
	when	*describing*	Heat	energy	from this effort
	scientific	*diagrams*	Kinetic	energy	from their feet pushing on the pedals
	and	*representations*	Kinetic	energy	which moves the wheels
			Kinetic	energy	may be wasted
			Heat or sound	energy	due to friction between the tyres and road

☐ If the flow chart above were to have energy values in **joules** included, which column would you be putting this data into?

Let's compare:

Which one	How many	What quality	What type	Thing	What else
				pushbikes	
			Chemical	energy	
			Kinetic and heat	energy	
			Kinetic	energy	from the person
			Sound and heat	energy	in the wheels

Which one	How many	What quality	What type	Thing	What else
A				person	riding a pushbike along the road
			Chemical potential	energy	from food
			Kinetic	energy	when they use their muscles to push the pedals
			Chemical	energy	
			Heat	energy	from this effort
			Kinetic	energy	from their feet pushing on the pedals
			Kinetic	energy	which moves the wheels
			Kinetic	energy	may be wasted
			Heat or sound	energy	due to friction between the tyres and road

Activity:

- ☐ Read the explanation that you wrote at the start of class. Use highlighters or a coloured pen to underline your answer as to where your answer was aligned with an explanation, or where it was more of a description (lacking detail)

Discuss with the people near you and then write down your ideas in dot points:

- What strategies can you use to improve your writing ability?
- What do you know now that you didn't at the start of the lesson?
- How can you apply these skills to other subjects?

- **Invitation to lesson observation (2022)**

applicant
From: [redacted]
Sent: Monday, November 7, 2022 4:02 PM
colleague **To:** [redacted]
Subject: Observation

colleague Dear [redacted]

Thank you again for enabling me to see your 8 Science literacy class in action this week.

I am spare in P3 and P4 tomorrow, which one would suit in terms of when you think you might be working on the activity.

Kind regards

applicant [redacted]

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colleague **From:** [redacted]
Sent: Tuesday, 8 November 2022 11:01 AM
applicant **To:** [redacted]
Subject: RE: Observation

Come in p3 asap

Sorry didn't see your message until mt

colleague [redacted]

- **Lesson observation notes**

colleague applicant

Lesson observation of [redacted] by [redacted]

Year 8 Science – cognitive verbs, energy flow diagrams

8th November 2022
11:00 – 11:30am
Room I25

- Students use worksheet in OneNote to respond to the energy flow diagram with an "explain" cognition.
- Given writing time.

colleague

- [redacted] explains that cognitive verbs are used in the marking process.
- Points out that explain is evident in the A-B level criteria, and that describe is a C level descriptor.

- Breaking down of words used in a model response – "things", "energy types", "what else".
- Relates energy types to the flow diagram.

- Describe would be describing each step, if explaining then there is extra detail to include, e.g., the energy is in the wheels, the types of energy are sound and heat.
- Compare to "explain" response, "person", "thing", "what else" = specific details
- Using scientific vocabulary such as transforms, transfers, use of types of energy, where the energy comes from, e.g. chemical energy from food, heat energy comes from moving muscles.

colleague

- Student asks for clarification of "How do you know where the energy comes from?", [redacted] responds that additional knowledge needs to be drawn from and used.
- Student asks about heat energy being mentioned twice, is that from the rider and the friction of the bike.

colleague

- [redacted]: Yes, you need to correctly interpret the diagram in order to explain fully

- Students asked to reflect on their written paragraph and consider what additional information needs to be added. Directed to re-write it ensuring explaining, not just describing.

colleague

- [redacted]: Makes point made that the model response is very developed, to be used as a learning tool to see the difference between a detailed response and a "describe" response.

- Teacher circulation and discussion with students, suggestion for students to start with dot points, and then move to whole sentences.

- 11:32 – moves onto enquiry skills question.

- **Post lesson observation follow up**

colleague **From:** [redacted]
Sent: Tuesday, 15 November 2022 3:47 PM
applicant **To:** [redacted]
Subject: Reflection on Lesson

Dear [redacted] applicant

Thank you for coming to my lesson last Tuesday, it was good to utilise that literacy activity again. The students were very receptive to it, and even though the exam has now changed to a marks based assessment, it is still useful for them to be considering the difference between an “explain” and a “describe” cognition for answering exam questions.

As I was circulating around the classroom, students were asking questions about the differences between explain and describe and how to include data to move towards the explain response. Students requested more practice questions to work through with model answers and these have been provided. Students found the exercise very useful in practicing expanding their responses to include information that they know but didn’t realise they needed to include.

If you want a couple of student samples then please let me know.

students student
[redacted] and [redacted] might be good examples of improvement.

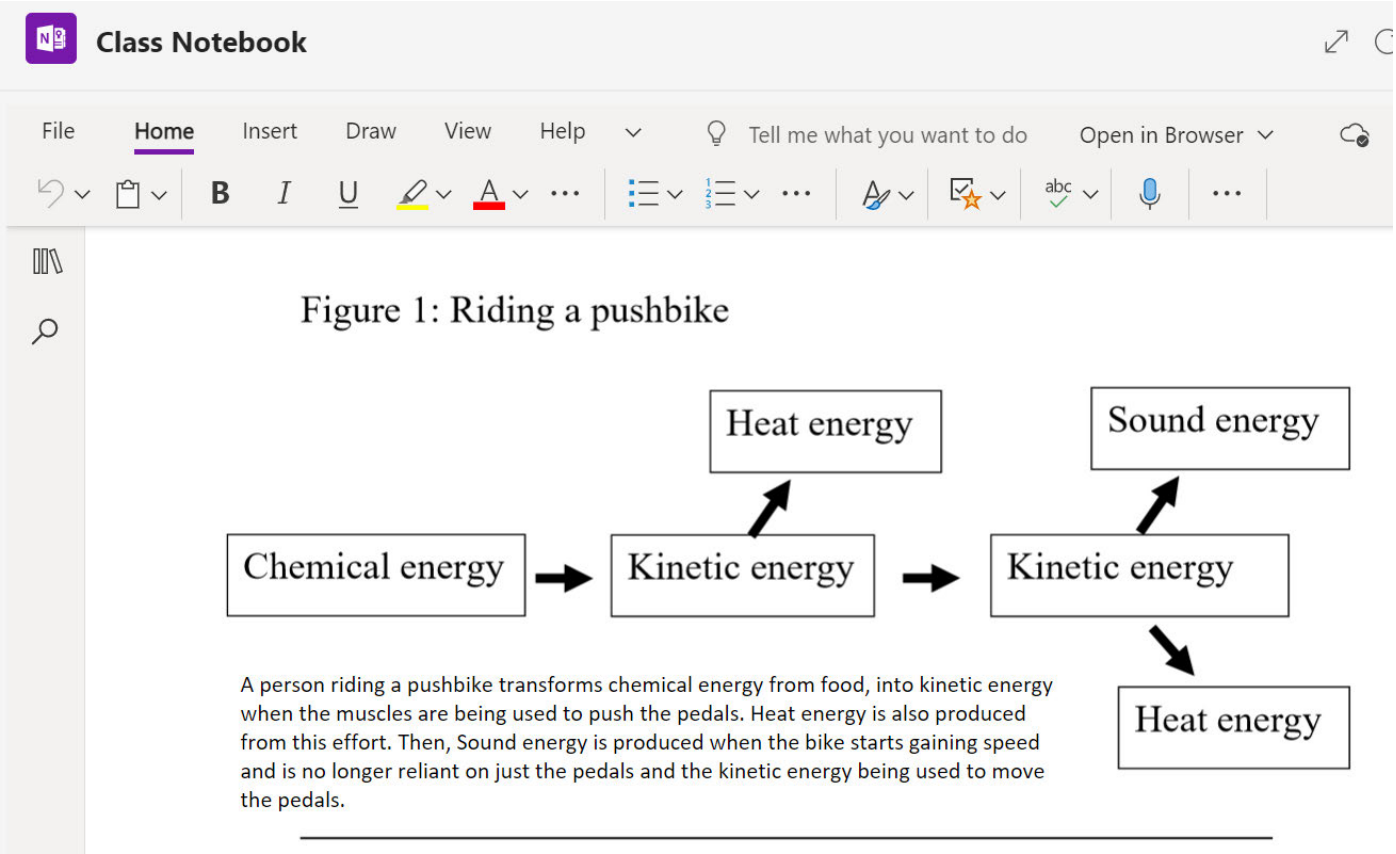
Kind regards

[redacted]

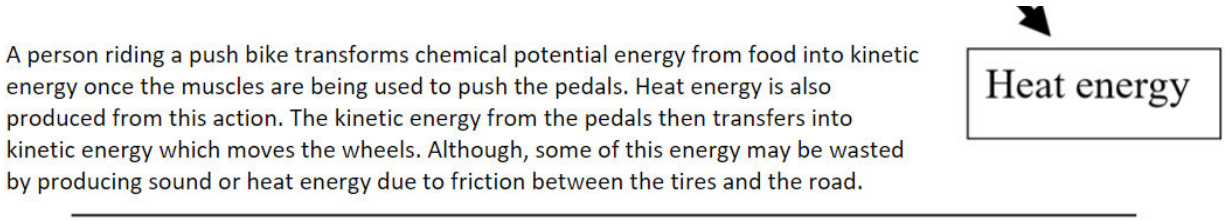
colleague
[redacted]
Classroom Teacher

- **Student samples from colleague [redacted] OneNote**

First attempt



Second attempt



Student has improved in second attempt by incorporating kinetic energy transfer and production of wasted energy.

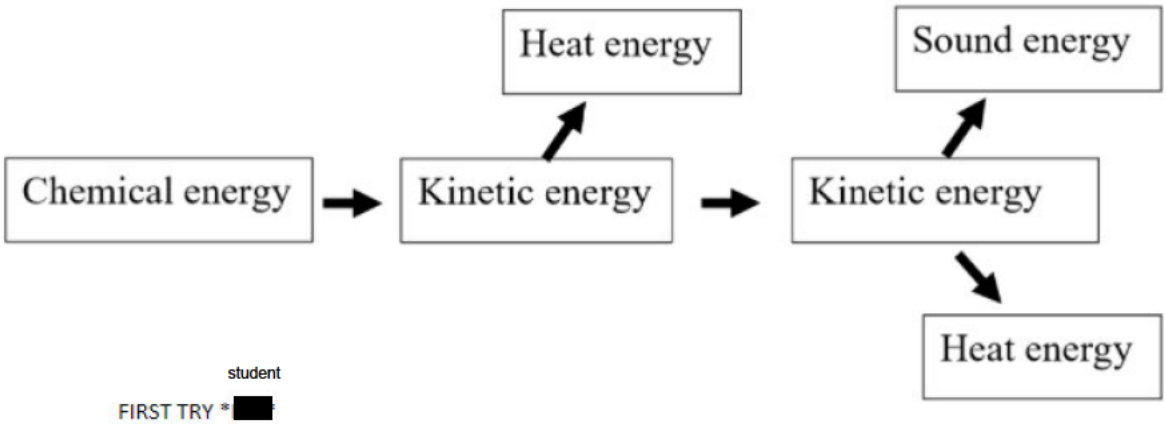
First attempt

Class Notebook

File Home Insert Draw View Help Class Notebook Tell me what you want to do Open in Brows

Calibri 11

Figure 1: Riding a pushbike



student

FIRST TRY *[redacted]

At the start, the pushbike is displaying chemical energy, when the bike moves the person's leg is displaying energy is transformed into Kinetic energy and heat energy then the wheels are using kinetic energy to move and heat energy when the wheels are brushing against the floor and sound of the Wheels.

Second attempt

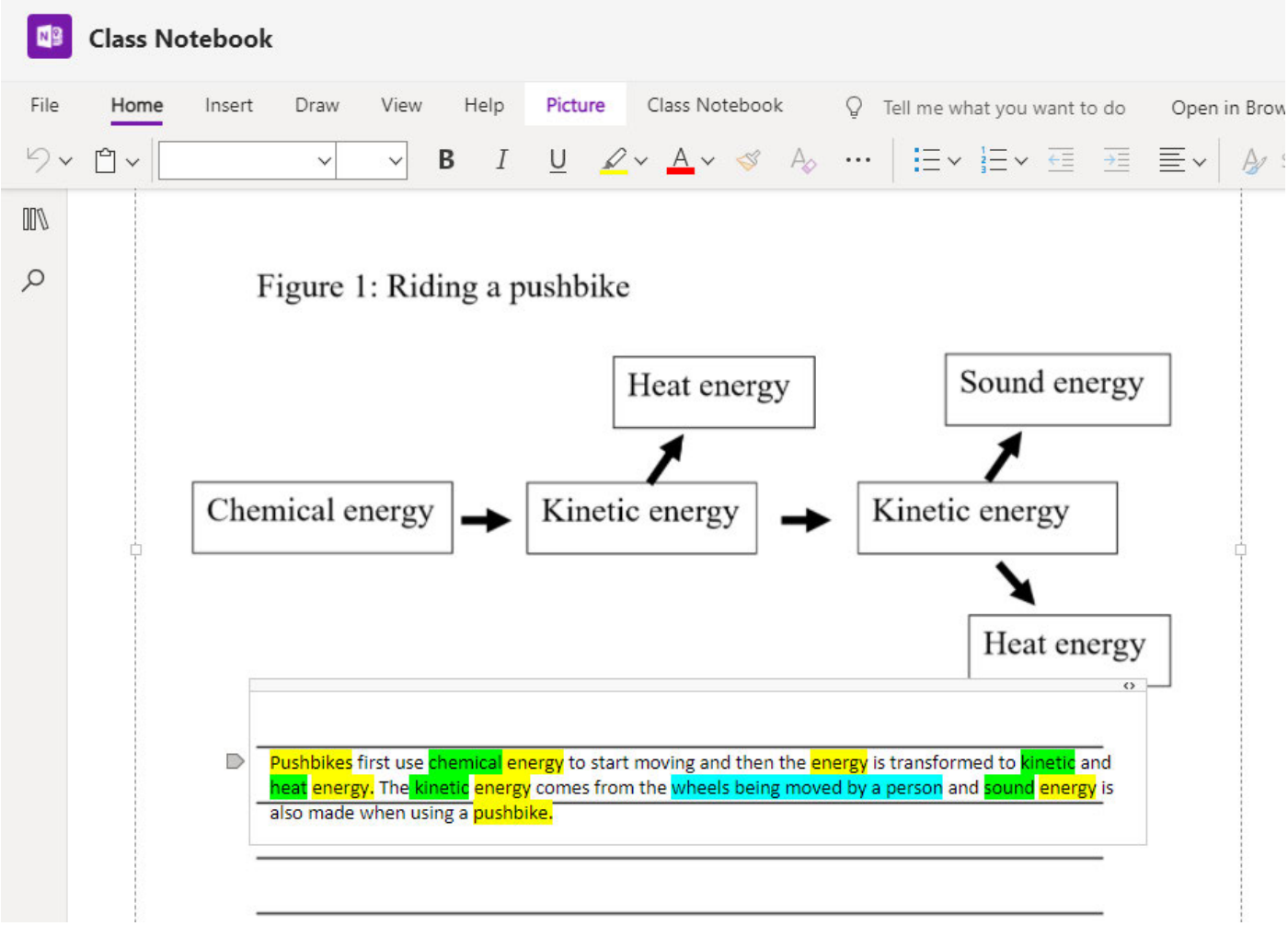
student

SECOND TRY *[redacted]*

At the start, there is chemical energy in Harry Styles who is about to ride the pushbike from the food that he ate, when his leg moves along the ground, the chemical energy is being transformed to kinetic energy because his leg is moving and heat energy as the his foot is meeting the ground and running (sort of). As Hazza's leg is moving, his wheels also start to move which is also kinetic energy!! The kinetic energy is then transferred to heat energy as the wheels are in contact with the floor and then the wheels make a sound which is sound energy.

Student has improved in second attempt by explaining the source of the chemical energy, and some appropriate energy transformations.

First attempt



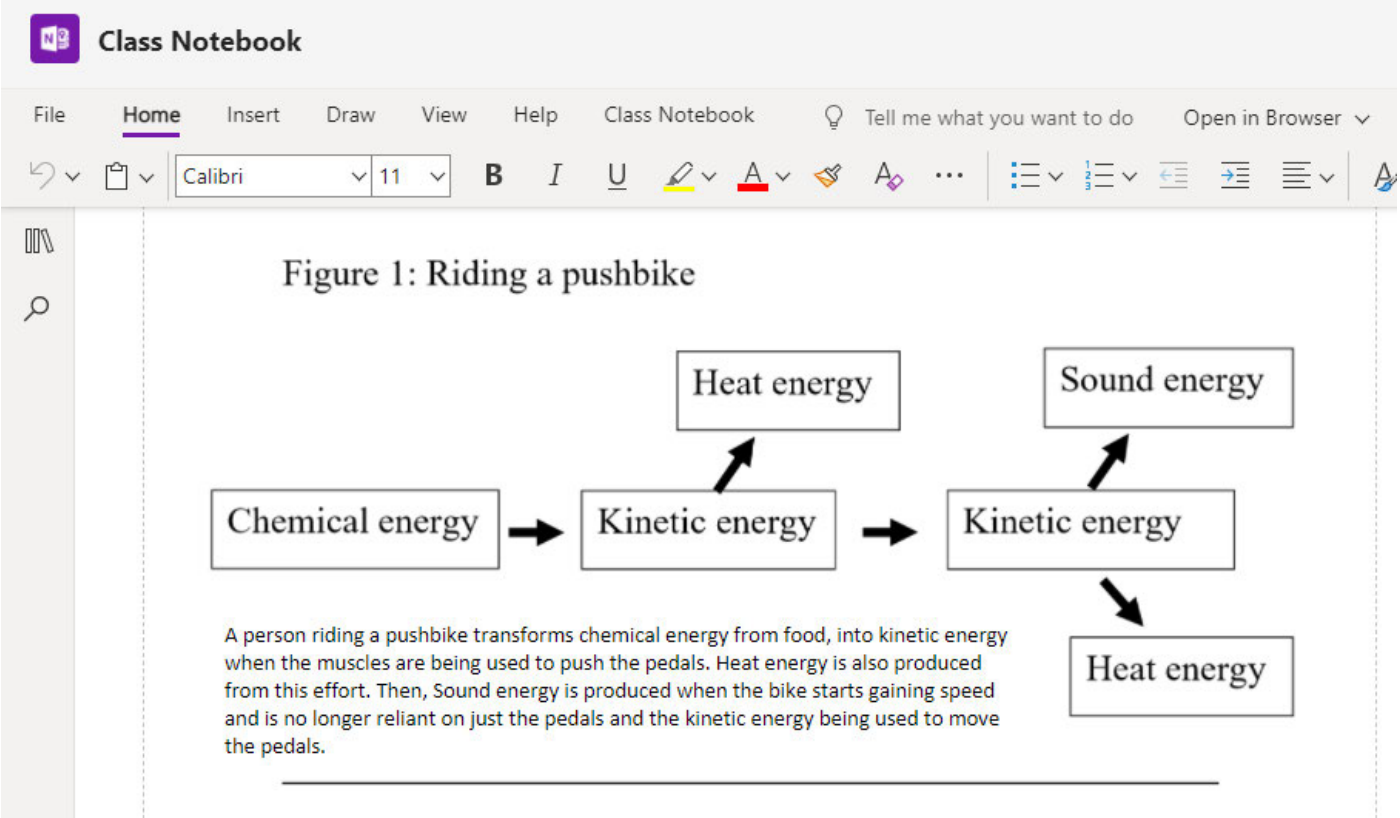
Second attempt

A person using a pushbike first starts by using chemical energy that was produced from their food, then ~~by using the~~ muscles to push the bike along the road~~, the~~ chemical energy ~~transforms into~~ kinetic energy. Then the chemical energy is transformed into heat energy from the effort of the person using their muscles. The kinetic energy is then transferred to kinetic energy from the person moving the wheels. Some energy can be wasted on heat and sound energy due to friction.

Student has improved in second attempt by explaining the source of the chemical energy, and some appropriate energy transformations, and production of wasted energy.

Student has also emulated highlighting from lesson.

First attempt



Second attempt

A person riding a push bike transforms chemical potential energy from food into kinetic energy once the muscles are being used to push the pedals. Heat energy is also produced from this action. The kinetic energy from the pedals then transfers into kinetic energy which moves the wheels. Although, some of this energy may be wasted by producing sound or heat energy due to friction between the tires and the road.

Student has improved in second attempt by picking up the transfer of kinetic energy and the production of wasted energy.