Year 8 Science Curriculum – Key Summative Tasks

Chemical Sciences Matter

Science Understanding

The properties of the different states of **matter** can be explained in terms of the motion and arrangement of particles.

1. *explaining why a model for the structure of matter is needed*
2. *modelling the arrangement of particles in solids, liquids and gases*
3. *using the particle model to explain observed phenomena linking the energy of particles to temperature changes*

Achievement Standard

Students compare physical and chemical changes and use the particle model to explain and predict the properties and behaviours of substances.

Key Summative Task

Slime Investigation

Science as a Human Endeavour

- [ ] Students examine the different science knowledge used in occupations.
- [ ] They explain how evidence has led to an improved understanding of a scientific idea.
- [ ] They describe situations in which scientists collaborated to generate solutions to contemporary problems.

Science Enquiry Skills

- [x] Students identify and construct questions and problems that they can investigate scientifically.
- [ ] They consider safety and ethics when planning investigations, including designing field or experimental methods.
- [x] They identify variables to be changed, measured and controlled.
- [ ] Students construct representations of their data to reveal and analyse patterns and trends, and use these when justifying their conclusions.
- [x] They explain how modifications to methods could improve the quality of their data and apply their own scientific knowledge and investigation findings to evaluate claims made by others.
- [x] They use appropriate language and representations to communicate science ideas, methods and findings in a range of text types

General Capabilities

- [x] Literacy
- [ ] Numeracy
- [ ] Information and communication technology (ICT) capability
- [x] Critical and creative thinking
- [ ] Personal and social capability
- [ ] Ethical behaviour
- [ ] Intercultural understanding

Cross-curriculum Priorities

- [ ] Aboriginal and Torres Strait Islander histories and cultures
- [ ] Asia and Australia's engagement with Asia
- [ ] Sustainability.

Note for the following task – this would be a bit overwhelming if given out all at once. Suggest one page is done at a time as the first design page will take at least 1 lesson, the making the slime and collecting the results will take a double and the final page will take at least a lesson. Alternatively just put the pages up on the white board (they're mostly blank space any way) and just use to scaffold students through the process.

8 Science

Assessment Task

Hi, my name is_____ ☺
My job is to compare three different **SLiMES** to see which is the **SLiMiEST**.
I think the best **SLiME** should

_____

_____

To test this I am going to work with my team to do the following to each of the **SLiMES**.

1. _____
2. _____
3. _____
4. _____
5. _____

The equipment we will need

-
-
-
-
-
-

Our independent variable will be the type of **SLiME** we use. The variable we will measure will be

_____

The variables we will keep constant are

_____

_____

The best **SLiME** will

_____

_____

Diagram of my **SLiME** test (I've drawn this neatly with a ruler and pencil and I've labelled it so it is easy for you to follow).

Okay, We can now go and make our first slime. **SLIME #1**

Below are my quick descriptions of the ingredients of this SLIME and of the finished slime.

Starting material	Description of material
#1	
#2	
Final SLIME	

I think the SLIME is very **like/different** from the starting materials.

We carried out my team's SLIME test on this SLIME and here are our **results**

We wrapped the SLIME in cling film and labelled it with our names so we can collect it at the end of the day.

Now we can make our second SLIME.

SLIME #2

Below are my quick descriptions of the ingredients of this SLIME and of the finished SLIME.

Starting material	Description of material
#1	
#2	
Final SLIME	

I think the SLIME is very **like/different** from the starting materials.

We carried out my team's SLIME test on this SLIME and here are our **results**

We wrapped the SLIME in cling film and labelled it with our names so we can collect it at the end of the day.

Now we can make our third SLIME. **SLIME #3**

Below are my quick descriptions of the ingredients of this SLIME and of the finished SLIME.

Starting material	Description of material
#1	
#2	
Final SLIME	

I think the SLIME is very **like/different** from the starting materials.

We carried out my team's SLIME test on this SLIME and here are our **results**

We wrapped the SLIME in cling film and labelled it with our names so we can collect it at the end of the day.

Conclusion:

Our best SLiME was _____

The reason I rate it as the best SLiME is

_____

_____

This answer should match my ideas at the start of this practical.

Discussion:

I thought my SLiME test was good because…

_____

_____

_____

To make my SLiME test better I would….

_____

_____

_____

_____

To show that I understand this topic I will use diagrams and words to show how I think the particles in the SLiME are behaving. (e.g. are they moving a lot? Are they spread out? Are they tightly held together?)

I will support my thoughts with evidence from my SLiME test.

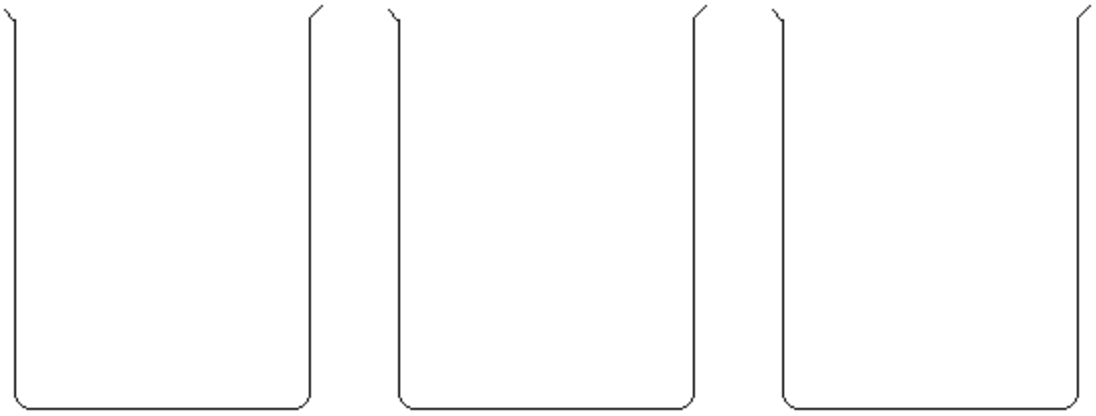
Using your knowledge of the particle theory of matter **explain** what you would do to change the properties of SLiME.

This following part is in case students are not able to show the necessary understanding in their slime investigation discussion

Find how particles behave in solids, liquids and gases then use the information to explain why sometimes slime is a solid and sometimes a liquid. http://www.chem4kids.com/files/matter_states.html and http://www.youtube.com/watch?v=s-KvoVzukHo

Find a webpage that tells about the kinetic (or particle) theory of matter.

Now, using the information on this webpage draw what the particles would be doing if they were in the states shown below each beaker.



Solid Liquid Gas

Using these words and phrases complete the following sentences.
flow, pressure, expands to fill the space, matches the shape of the container, doesn't change shape, doesn't try to fill the space
We can recognise a solid because

We can recognise a liquid because

We can recognise a gas because

Did your slimes behave like solids, liquids or gases?

What evidence did you use to make this decision?

Do other people in the class agree or disagree with you?

Do you think the particles in slime are behaving the same way when poured slowly and stirred quickly?

Draw diagrams to support your answers and communicate to others how slime behaves.

SLiME Assessment Rubric

	A	B	C	D	E
Need for particle model	Correctly suggests a method to change the properties of the slime and explains totally correctly how it would work	Correctly suggest a method to change the properties of the slime and explains how it would work	Correctly suggest a method to change the properties of the slime	Suggests a method but with little detail.	
Modelling arrangements of particles	Clear well labelled diagrams which covers energy/motion and forces of attraction	Clear diagrams of particle arrangement that shows some of energy/motion and forces of attraction	Clear diagrams of particle arrangements	Some drawings of particles that are supported a little	Attempts to draw particles.
Using model to explain phenomena	Correctly describes the behaviour of the particles in the slime and provides supporting evidence	Correctly describes the behaviour of particles in the slime.	Describes slime by referring to the behaviour of its particles	Describes some particle behaviour.	Attempts to describe particle behaviour
Construction of problems to be investigated scientifically	Clearly describes the properties necessary for a slime and procedure that is a clear and detailed description of how to test for them. Clearly defined measurements and how variables will be controlled	Clearly describes the properties necessary for a slime and prepares a clear method to follow. Some discussion of measurement. Some mention of controlled variables	Identifies the properties necessary for a slime and a method to test for them	Identifies a property of slime and partially develops a test.	Attempts to record a test or property
Identification of variables	States the variable to be measured with a reason and clearly describes which variables will be controlled and why.	States the variable to be measured with a reason and some of the variables to be controlled with some reasons.	States the variables to be measured and some variables to be controlled	States variable to be measured	Attempts to state variables
Modifications to method to improve investigation	Reflects on success of investigation in detail and gives detailed description of changes.	Reflects on success of investigation clearly stating changes to make.	Reflects on success of investigation.	Mentions that the practical went well	Attempts to reflect
Use of appropriate language and representations	Uses scientific terms beyond those covered correctly	Uses scientific terms correctly	Uses scientific terms mostly correctly	Uses scientific terms sometimes correctly	Attempts to use scientific terms
Literacy	Sort and used unfamiliar words and punctuation correctly.	Spelling and punctuation correct	Most spelling and punctuation correct.	Some spelling and punctuation correct	Some words are correct
Critical and creative thinking	Designed test shows clear thought about properties of slime and how they could be tested.	Designed test shows thinking about testing methods and slime	Designed test shows thinking about slime.	Designed test that links to slime	Attempts to design test