

Waikanae School

Science Survey Results 2013

Teachers Responses

Executive Summary

Only one sixth of teachers at Waikanae feel confident about teaching science with two thirds of teachers needing to research before teaching. One sixth stated that they were uncomfortable with their lack of knowledge.

Nearly three quarters of staff felt that not enough science is being taught with the average amount of time being given to it just one term a year. Some incidental science is being taught as questions arose through reading or other cross curricular links.

The split of the strand of science that teachers prefer to teach was quite even between Planet Earth and Beyond, Material World and Living World with the latter being most popular. Least popular to teach was Physical World.

The strands chosen to teach generally come from long term plans within syndicates to ensure coverage of the topics being taught. Sometimes science is planned if a particular resource becomes available or it is taught incidentally when needs or interests arise, particularly in the juniors.

Half of the teachers think there are not enough resources in school to teach science effectively and this can put them off teaching certain parts.

Assessment in Science is generally through observations and judgements on the contributions made to discussions. Some ARBs are used and some self assessment against success criteria. Teacher judgement plays a big part.

Half of the teachers think that the children know they are being taught science, with the other half evenly split between no, the children don't know they are being taught science or don't know.

Literacy is by far the other curriculum area used the most in the science programme, followed by maths. To a lesser extent the following areas were also covered in relation to the science program - Art, Health and PE, Technology, Social Sciences, Te Reo and ICT/computers.

89% of teachers have had no Science PD in the last five years. PD most requested is Inquiry Learning, followed by integrating ICT, Maths and Literacy into Science. Assessment and Key Competencies in Science also featured strongly with actual curriculum knowledge PD much lower. Physical and Material World were the strands requiring most PD.

To increase teachers' interest of confidence in teaching Science, they felt that PD is the most important factor. Other suggestions were a school wide approach, fun and motivational ideas, cross curricular links, better equipment, teaching it more often, having more interactive fairs, visits and experts, both at school and away, experiment experience and teaching smaller groups to be more thorough.

We do have some science champions in school with three teachers being named. The internet is the next main source of answers with some teachers asking other science specialist teachers in other schools.

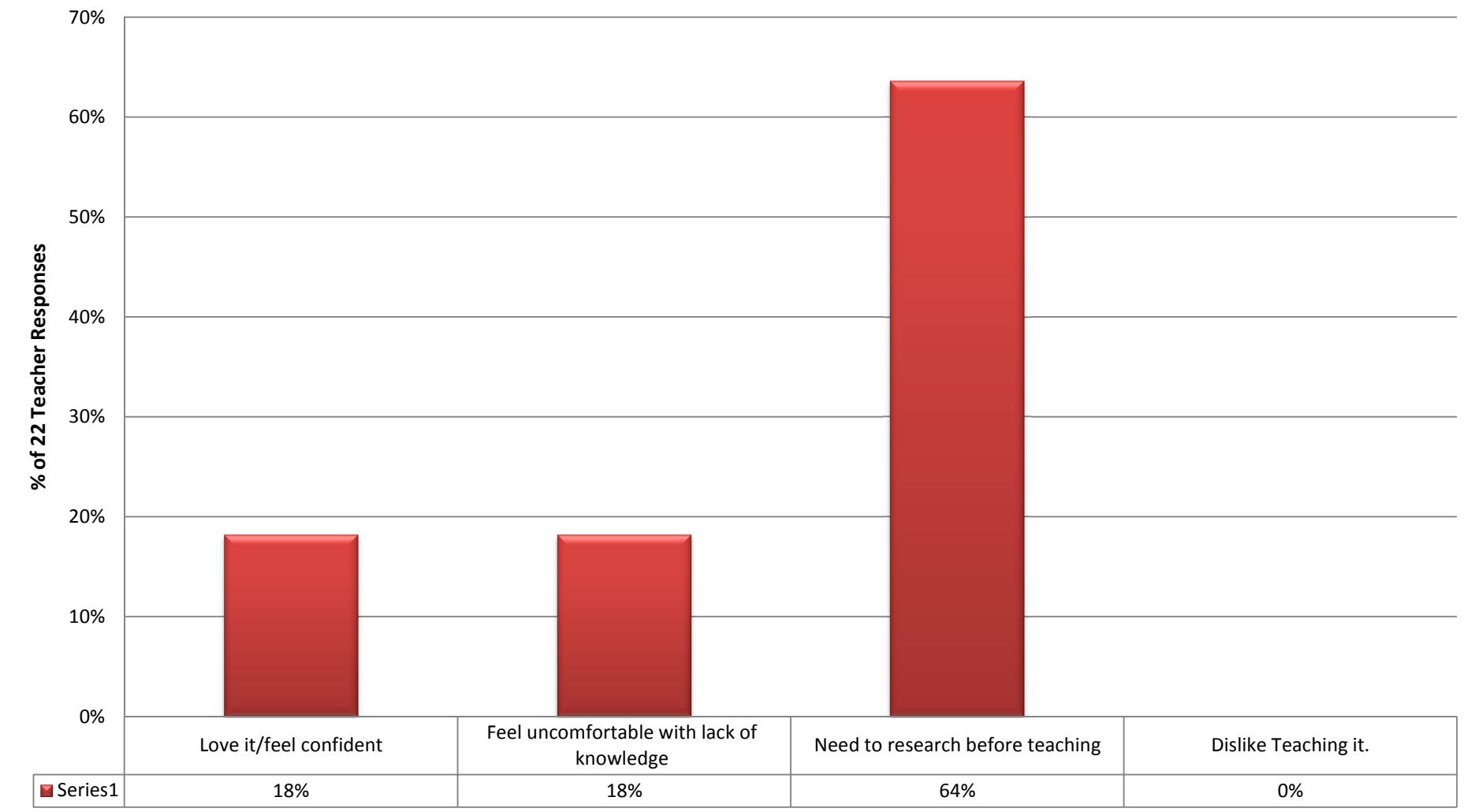
When responding to children of different abilities, genders and cultures in science teaching, teachers act the same as with other subjects.

They allow for differences in ability and ensure that all are included, they don't assume literacy and maths knowledge equates science knowledge, they mix up abilities and genders, they ensure cultural sensitivities are taken into account, they support/ scaffold the less able and extend the more able, sometimes using peer tutoring or experts, they question and encourage questions and they make it practical where possible.

Science Fairs are popular with teachers as they believe they engage children predominantly. The chance to share ideas/learning is also valued as is the opportunity to enhance learning and hold discussions. Other comments included tailoring science to individual interests, a focus for science, opportunity for modelling, they broaden knowledge. Some teachers felt that a science fair's success can depend on the skill and enthusiasm of the teacher and that children's work should not be led by parents but be their own work.

A comment that is reiterated by some teachers is that they would like to see more emphasis on Science as it has been neglected in recent years due to the focus on Numeracy and Literacy.

Question 1 Teachers.
What are your views on teaching Science?



Question 1a Teachers. If 'Other' please comment.

But love it anyway

Enjoy teaching science as very 'hands on'

I love it but I need to research before teaching

OK on most

Only dislike teaching it if resources are unavailable.

Really like it, just hard to fit it in and do it justice (like everything else)

Question 2 Teachers. How much Science do you teach each year approximately? E.g. one term a year, twice a week....

I try to cover aspects of science each term

one unit a year

Probably during one term but try to link it into any topics that may come up in the course of a normal teaching day

2/3 times a week when we have planned it into our Term planning for topic in the afternoons, so once every year for a whole term block.

one term a year, 2 - 3 sessions weekly

Only syndicate units but also some around the sustainability school-wide work

Officially as Topic usually once a year but teachable moments crop up constantly.

One term per year, sometimes two depending on themes

None as I am in a non-teaching role

Two terms a year - but in my reading programme with resources on science topics

Once a term. Depending on what the topic is for the term e.g. colour mixing in Term 2 I did a couple of science experiments.

one term a year topic based

One term a year in general - usually a unit/topic

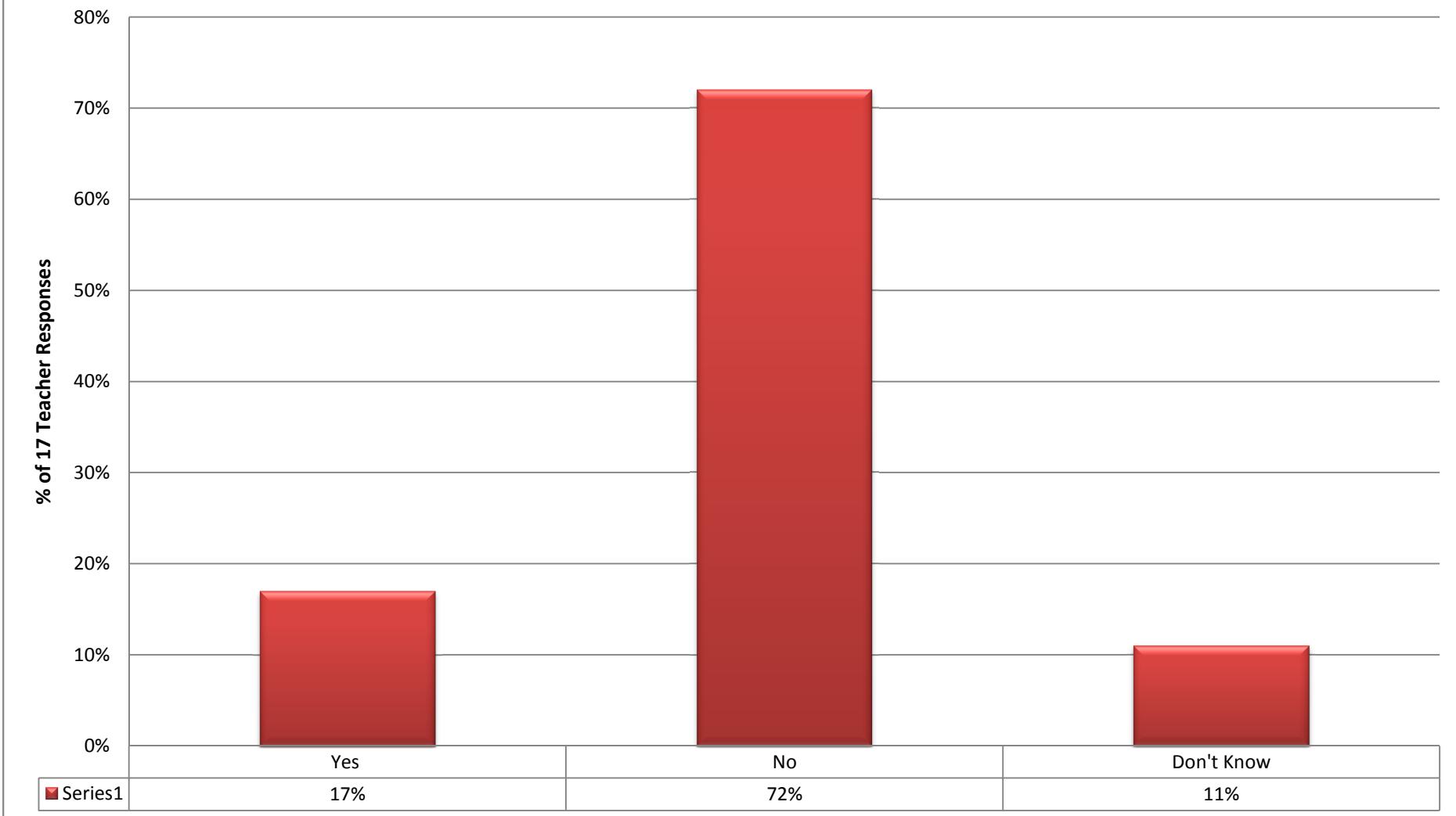
twice a year

Once or twice a year if it's in the programme. I never do it as a once-off when relieving (planned by me),

Whenever it comes up as one of our syndicate topics/or if it fits with what I am doing

One term a year and as it arises through other subjects/discussions.

**Question 3 Teachers.
Do you think enough Science is taught in school?**



Question 4 Teachers. How do you decide what to teach from the Science Curriculum?

I follow our long term plan for the syndicate. Sometimes there are occasions through our reading material that a science concept may be mentioned and we follow it up. I also like to follow the interest my students show in class discussions.

I follow the guidelines set out by our syndicate leader.

Senior teacher determines in consultation with staff, or a particular resource may become available (e.g. News Links) and so will act as a catalyst.

Discussion at syndicate meetings to see what gaps/areas need to be covered.

Usually the decision is made from what we haven't covered in previous years. At times the syndicate has decided to select a topic that we feel the students need more understanding of.

From our long term plan - which ensures good coverage.

Area we haven't covered or topic of current interest e.g. volcanoes if White Island becoming more active.

Strands previously covered and Current themes

Not Applicable as I am in a non-teaching role.

It is discussed as a syndicate together. We look at what science we have taught at what needs to be taught. The science curriculum is covered.

Sometimes needs or interest based which happens in the junior school incidentally often. Or sometimes planned as coverage

I normally try and plan it around what our topic focus is for the term and then try and integrate it this way.

Syndicate decision based on topic and coverage

We rotate the concepts/topics within science; we teach whatever hasn't been covered for a while.

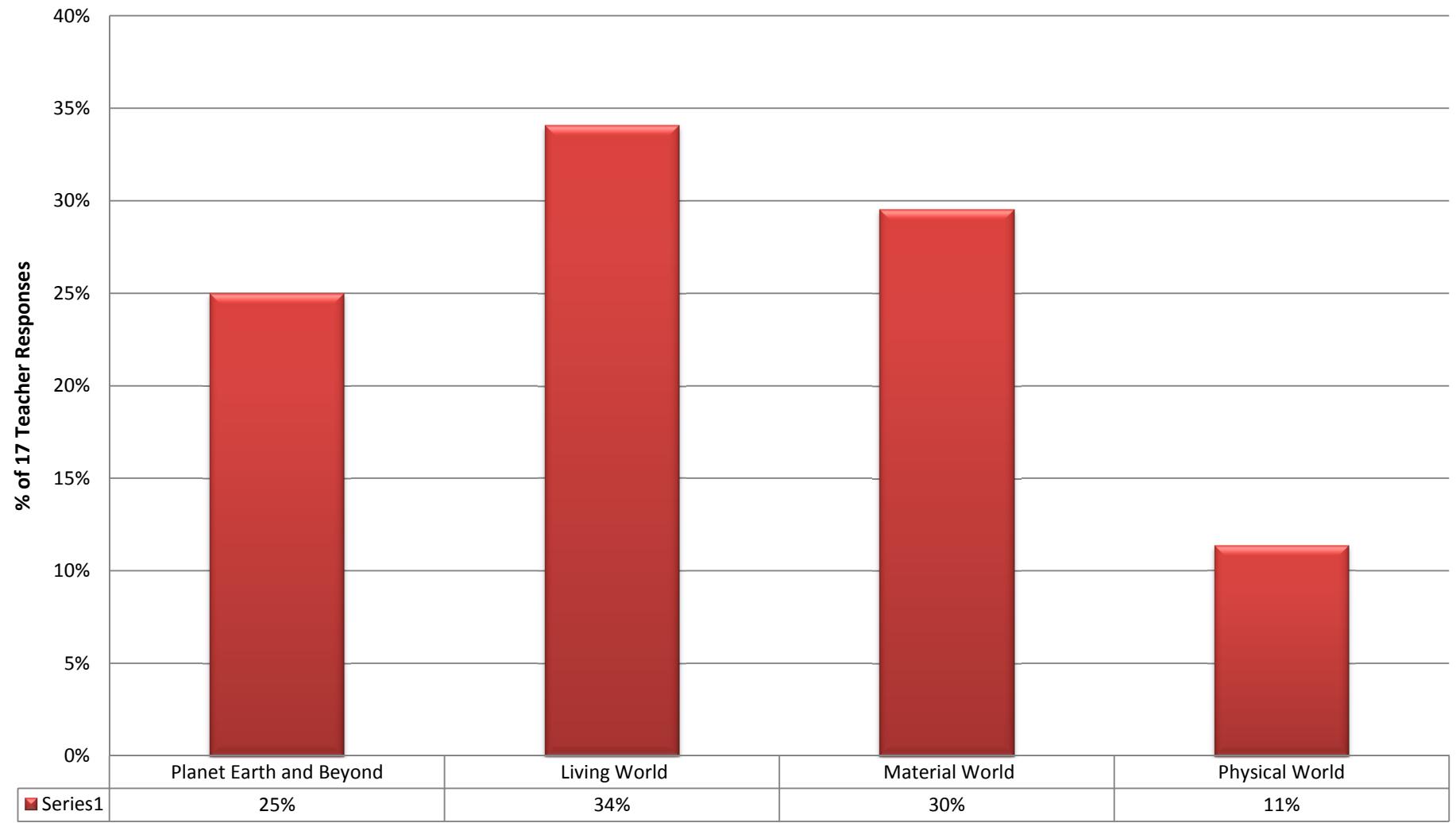
Decided as a syndicate

If I was teaching long-term, I would pick one topic from each strand every 2nd term.

Based on our topic

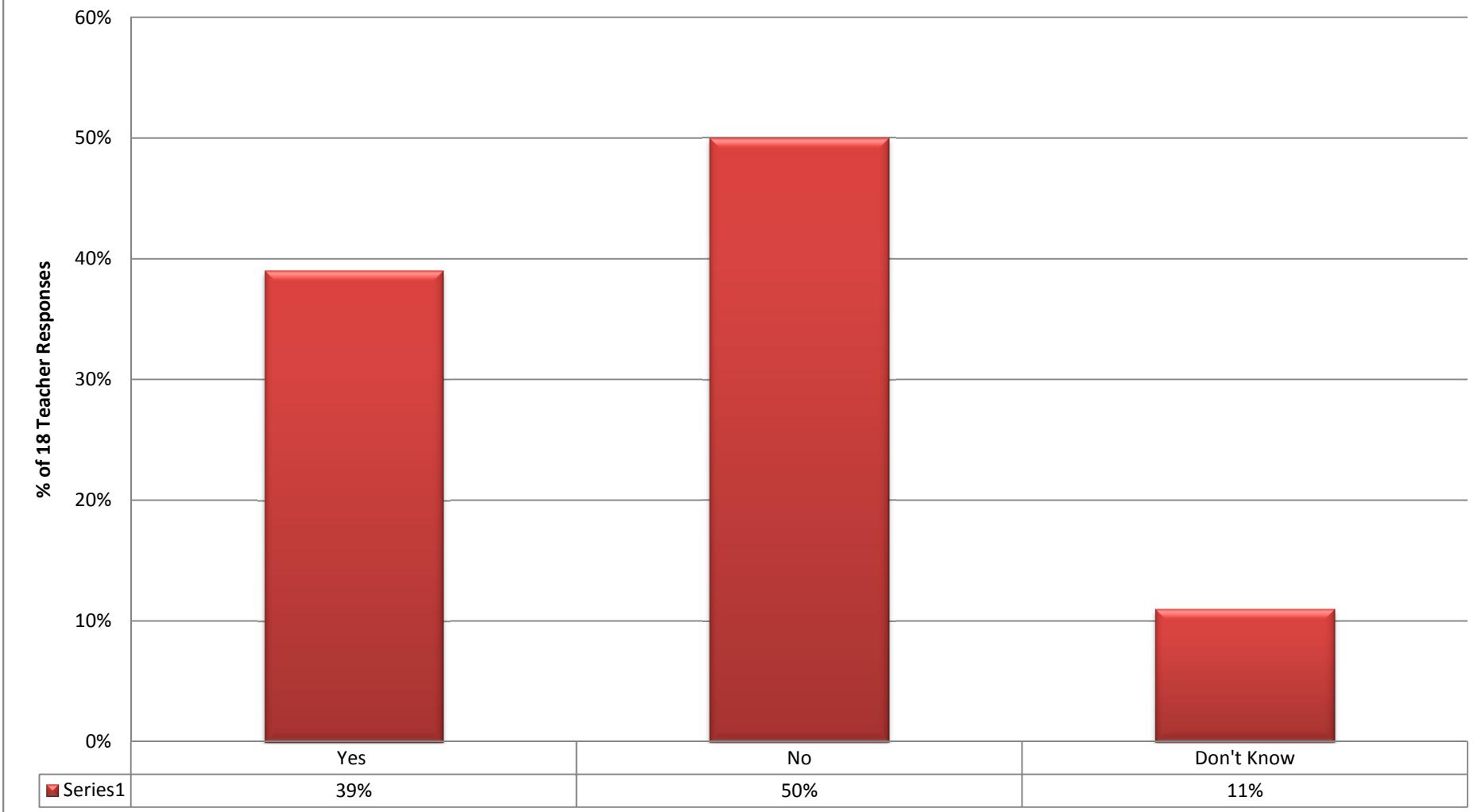
Gaps from previous years.

Question 5 Teachers.
Which parts of the Science Curriculum do you prefer to teach?



Question 6 Teachers.

Do you think there are enough resources in school for the Science you have taught?



Question 7 Teachers. How do you assess Science?

ARB and teacher judgement

Based on the unit I assess each child on each learning intention as achieved with help, not achieved or next learning step (!) and demonstrates good understanding.

Mainly from the book/paper work that the children produce and the effort they put in rather than a testing of their knowledge or understanding

Student's self-assessment. Tick check list of Success Criteria. Verbal discussion/feedback of student gained knowledge.

Usually with an Assessment Bank resource

Use ARBs and similar relevant resources

Observation/discussion/questioning

Various..... ARBs self-assessment pre/post test

Not Applicable as I am in a non-teaching role

Self-assessment for the students Teacher - have they reached my success criteria

Depends what is being taught. Informal observation. Evidence of work. Questioning and discussion.

I have in the past Peer assessed and self-assessed.

Depends on the aspect of science. Done as on-going during unit to see which concepts need more input during unit. observation/discussion

Observation, peer and self-assessment, talking to children, taking anecdotal notes during teaching about who does and doesn't understand or what I notice. Sometimes we assess with an ARBS

usually a written test

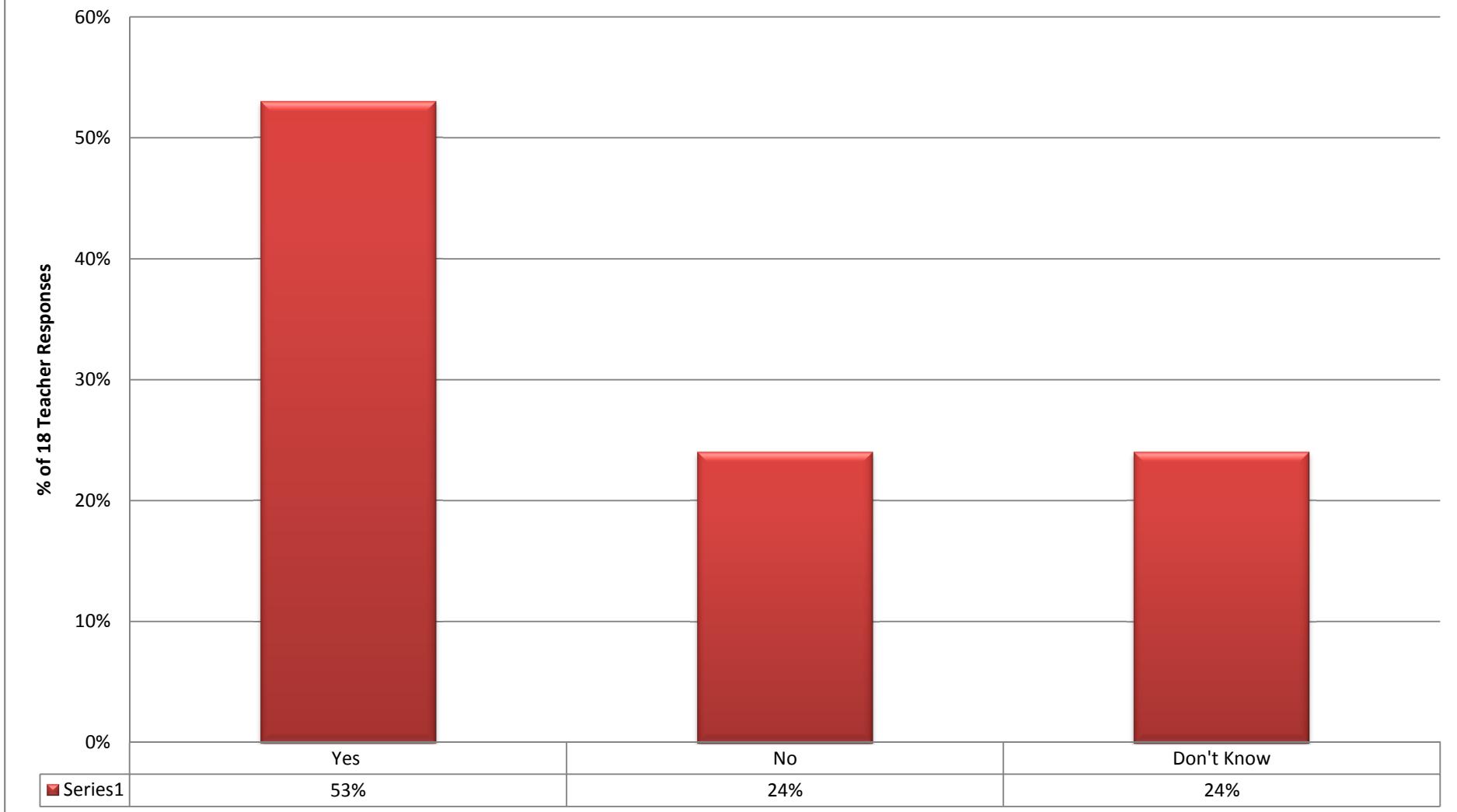
Self-assessments with criteria matching. Teacher observations

Observation. I don't think it needs summative assessment because the context changes and you don't revisit it. Probably more relevant to comment on their contributions and observations etc.

ARBs, observations, general OTJs

Question 8 Teachers.

Do you think your children know you are teaching Science or is it just seen as Topic work?



Question 9 Teachers. Which other curriculum areas do you use in your science programme, e.g. literacy?

Literacy,, Maths, Technology, Health and PE

Story writing and reading.

Reading, procedural/instructional writing, art/craft, maths

Reading e.g. when we done Natural Disasters our reading journals were stories/articles about Earthquakes, Tsunamis, Floodings etc. this was part of the planning. Literacy-report writing about disasters.

Literacy, Health and PE, Mathematics

Literacy - e.g. Reading - stories in journals such as ones about natural disasters

Try to integrate it as much as possible. Literacy/maths/art

Literacy and Maths

Not Applicable as I am in a non-teaching role

Reading - especially the extension students

Literacy, Social sciences, art, language experiences

Art and Maths

literacy , te reo, maths

I link science with reading - in the reading programme is great because we have NIE resources and connected journals.

Sometimes linked with maths and writing.

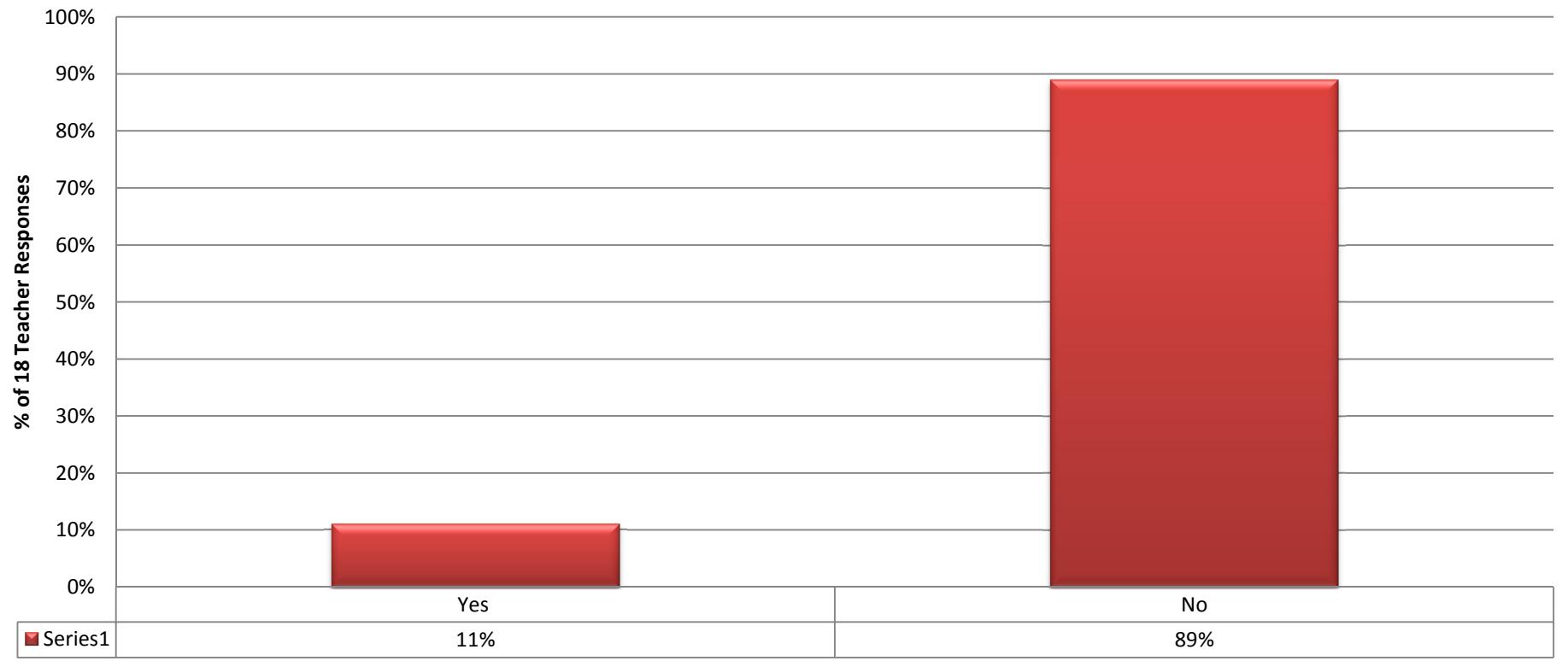
reading, writing

Literacy

whichever is relevant

Literacy, maths, technology, ict

**Question 10 Teachers.
Have you had any Science PD in the last five years?**



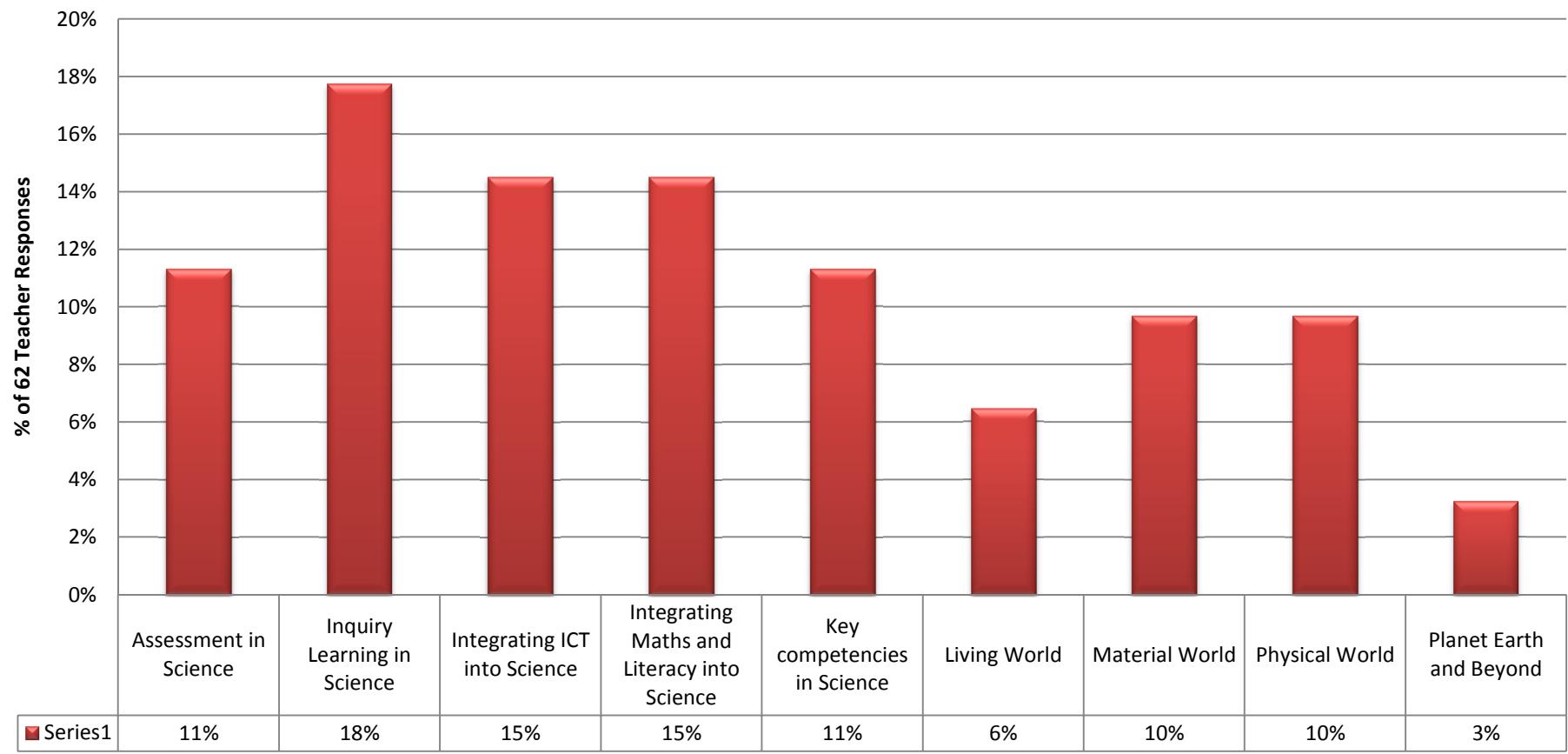
Question 10a Teachers. If 'Yes' please say what you have done.

RSNZ Science teacher's fellowship 2009

My own research/investigation before teaching a unit

Question 11 Teachers.

If you would like Professional Development in Science, what area would you like it in?



Question 11a Teachers. Other (please state).

Assessment in science - often seems to be focused on knowledge rather than science processes.

Question 12 Teachers. What would increase your interest or confidence in teaching Science?

A demonstration of how we can make science fun and enjoyable.

A school wide focus always helps alongside motivating ideas!

Being able to teach it in conjunction with other curriculum areas.

Being forced to do more of it (as a reliever)

Concentrated, on-going PD for maybe 2-3 years.

I am comfortable teaching science

I think if we had a Science session once or twice a week or so that was planned for the entire year - like maths is planned for strand. So we cover all four areas of science over four terms. This would be especially good in the senior end.

pd as above

PD, Better equipment, Participation in interactive visits, Science fairs, Science experts available - at and away from school, more time,

Probably having more confidence with the practical side of science e.g. - experiments

Professional Development

Professional development sessions.

Seeing some lessons actually conducted for us. It's one thing to read about it on Google, or whatever, but quite another to see some inspirational presentations using minimal resources.

Working with smaller groups when completing science experiments, for safety reasons but also so you can teach the Science aspects thoroughly.

Question 13 Teachers. Who is your Science Champion? The person in the school that you go to if you need help.

?

Angela Lemana

Any staff would be helpful if they are knowledgeable about a specific area. However to be honest I would probably go to John Auty and others I met through my Fellowship rather than someone inside the school

Maybe Pete C for some of the more IT stuff

Michelle Fearon

Michelle Fearon

Michelle Fearon

No idea

No particular person at the moment - discuss within syndicate usually

Peter Corlett

Peter Corlett

Peter Corlett

Peter Corlett

Peter Corlett

The Internet

The internet lol

Would depend on which part of the science curriculum.

Question 13b Teachers. Who is your Science Champion? The person in the community or elsewhere that you go to if you need help

?

?

?

Bill Snodgrass-HOD of Science Kapiti College

Dr Kenworthy, Google

Dr Sarah Kenworthy

Google

I am not sure... I would probably use good instead

My father

N/A

none

Partner

Probably go to John Auty and others I met through my Fellowship rather than someone inside the school

Sarah Kenworthy

Sarah Kenworthy

TKI/Colin Walker books

YouTube

Question 14 Teachers. How do you respond to children of different abilities, genders and cultures when teaching Science?

Allow for differences when teaching it.

As with any other subject. Don't assume children who are not good at maths or literacy are not good at science. I try to encourage girls to show more interest and mix up abilities when they are shown.

Ask questions of the students that don't see what the learning intention is. Have hands on science activities, as it makes it more interesting for the students. Working one on one. Emphasising the main learning intention I am teaching.

Ensure that learning is differentiated for all and that any cultural sensitivities are taken into account.

I make sure that everyone is included equally and that it caters to everyone's needs

I respond appropriately just as I would with all the other curriculum areas.

I try to cater for each individual no matter what their ability, gender or culture by simply listening to the knowledge and ideas of science that they know and believe in.

Mixed ability groups

More support for lower abilities, provide extension tasks for upper children. Generally science is taught as whole class and the catering just happens.

Not sure what you are actually asking for but I would like to think that I would respond in a similar way to teaching other subject areas where you try to be aware of, and adapt appropriately given the possible variables that might be sitting in front of you.

Tends to be whole class unless a child is following a specific subtopic of personal interest. Cross ability grouping on projects.

Try to ensure activities included that will capture interest /encourage questions

Use questioning to source responses

Set up inquiry , group /independent research

Use the more able students in a peer tutoring capacity.

Have Extra for Experts tasks for students who need extending.

Use their strengths, interests to motivate and share their ideas with others.

15. How do you feel Science Fairs enhance student learning in science?

Children can follow their individual interests/share ideas & learning with their school/local community. Lots of discussion.

Enhance their learning of the formal processes behind research and experimentation.

Gives a great focus and reason to do some serious science.

Gives a chance for children to share learning with parents. Students can share their learning with their peers.

Great. A good way of getting really good science modelled to both students and teachers. Sharing ideas is always good.

help to promote enthusiasm in science

I think it broadens their knowledge on what science can be about it's not limited to making volcano's etc.

It depends on the enthusiasm and skill of the teacher.

It gives students the opportunity to share their experiments, projects, research with other keen young scientists out there. Great for gathering ideas to bring back to school to share with peers and teachers.

It provides an experience and the students seem to enjoy it although in the junior school I am not too aware of how this happens or how the children react to the unit.

Science fairs are fantastic and I have fond memories as a child doing them. They are fantastic for the children to develop and challenge themselves in a topic of their choosing. Science fairs also have an element of pride attached as the students present their hard work and share with friends and family.

Sometimes the science fairs help engage children in science more.

Sorry, I haven't had enough experience with them to really make a constructive comment.

They are a good idea, however in reality it is a stressful time as some Science Fair topics are not completed to the best of their ability. Parents help out and take over the subject making things - Is this the child's work?

They enhance children's interest and they are a chance for children to learn through inquiry or fair testing etc. Usually the students select something they are interested in.

Think they initiate curiosity but need to be followed up.

We haven't participated in one for a number of years. I think they help to motivate children, encourages them to research and to find out why

Question 16 Teachers. Do you have any other questions or comments?

Good to see the questionnaire. Science is a topic that can really spark children's interests and I would be happy to see more of an emphasis coming through. :-)

I think Science has been neglected a lot in the last few years due to the huge focus on Numeracy and Literacy. There just doesn't seem to be time to put into "other subjects" such as science etc.

When given the opportunity, I enjoy teaching the Science Curriculum as I can follow the unit plan because each session has been planned thoroughly thanks to Peter.