Writing your own Program of Study – Stage 5

Helping homeschooling families to write their program of study in each of the key learning areas with stage statements

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3. Each KLA has these following components:
   1. stage statements,
   2. Your foundation statement,
   3. methodology,
   4. resources,
   5. Ways to record learning
   6. Ways to record progress

2015

Writing your Program of Study using Stage Statements

# Overview

To help you prepare your program of study in each of the Key Learning Areas (KLAs) – we have attached this outline to help you in your own presentation. To prepare your program of study for your family’s homeschooling life, we would firstly encourage you to set personal / family goals.

Once you have considered your goals, you should be able to continue and complete the outline of this Program of Study, which will become an important statement for your family as to where you are headed, what goals you set out to achieve, materials you may use and the methodology you will choose to complete your goals.

This program is written according to Stage Statements. It is a far more detailed program and you will need to create a different program for each child / stage you need. Alternately you can use the Program of Study using Objectives for all of your children.

# How do I prepare the Program of Study?

This program of study has been divided into the 6 Key Learning Areas (of Primary School) as defined by the Board of Studies.

Beneath each Key Learning Area, you may choose to include the following items. Remember to prepare this foremost for your unique family, and not just for the governmental authorities. Most of these components will not need to be updated, except for changes you will make – specifically the resources used. However, if your goals or methodology changes, you can add, delete, remove and update accordingly.

## STAGE STATEMENTS:

The first page under each Key Learning Area – is the Stage Statements Page. These stage statements have been taken from the NSW BOS Syllabus and should be kept in your program and can be used as a guideline or overview. It is good to place this as the first page behind each KLA. Having read the statements, keep this framework in mind as you prepare the rest of your document.

## YOUR FOUNDATION STATEMENT

This is a statement which you may (or may not) decide to create as you family’s vision and goal statement in teaching this subject. An example is listed under each Key Learning Area. You will need to replace this example with your own statement and what the big picture goals of teaching this subject to your children may be. This statement may be valid for their entire schooling – it is not specifically for the content of this year or for 2 years – it describes more of what your purposes are.

## METHODOLOGY

This describes the way in which you plan to teach this subject. This may change over the years and you may find it helpful to look at the Skills and Strategy Ideas Page in the Appendix for new methods to use as your children develop their skills. This is a practical section – showing what it would look like in your home – reading books, visiting the library, following interests, learning an instrument, real life learning experiences, writing in a notebook etc; You do not need to write everything you plan to do, but this is an overview of the methods you intend to use over the years. These methods are the general way in which you will fulfil your own plan.

## RESOURCES

This is the place where you would add the particular resources you will use to teach this subject and the specific content for the years of the program. It will vary over the years, according to what you have at home, resources you purchase, the interests that arise, the children’s level of ability and focus and so on.

## WAYS TO RECORD LEARNING

This is a way to record what is being learned;

You will need to keep some record of the learning activities of the family; It can be a teacher diary or each child can keep a record of what they do; It can also be a simple list of what was done in your day; You can use photos or scrapbooks to show the daily learning that takes place in the life of your home. You will need to be able to show some work examples. This does not need to be kept separately in a folder – it can just be the work they have done in books/ computer powerpoints / artwork / projects / skills etc

## WAYS TO RECORD PROGRESS

This is a statement explaining how you will take note of your child’s progress. To record progress of your child’s work and ability, you may (or may not) choose to use the diary as a way to add comments on what they enjoyed, what they need work on, etc. You can add results of tests if that is a part of what you do; You may also choose to add journal comments on learning that has taken place at home every month/ bi-monthly / half yearly / yearly. If **you’re able** to comment on the learning experiences from year to year, place it in a scrapbook, journal, blog or diary, it will be a lovely family memory.

*If the way you will do this will be similar across the subject areas, (observation, adding comments to diary, work samples, journaling…), you may choose to add this to your Philosophy of Education instead. Otherwise, leave it generic and attach it underneath each KLA.*

*If you want to have one broad statement to use in your Philosophy of Education to describe the ways you may record progress and achievement – here is an example:*

*Since we are working so closely with our children on a daily basis, we are very aware of the difficulties – their strengths and weaknesses, and can easily move them ahead or work on a certain skill if necessary. We can see their progress in a concrete way from their work samples and comparing what they did at the beginning of the year and what they were able to do at the end of the year. We will take mental notes and may take written notes of their achievements and struggles.*

Although, the first reason to write what you are doing should be for your family’s sake, this program of study will also be a useful document to show the Board of Studies when you need to register.

I have now added a Comments on Learning Activities Section following each KLA – which you may choose to use to record learning progress and a place to add in comments against the Stage Statements. This is not for weekly recording, but could perhaps be done once or twice a year. If you want to use this comment form, I would suggest you just use one form for the family as they are in the stage – and use your children’s initials when commenting on a particular child. (Keep it simple and write it for your family!)

# How do I display the Program of Study?

For the purpose of registration, you may like to use this format and display the pages in a plastic binder. This is not how you MUST prepare your program of study. It is a suggestion and a way in which you can describe what homeschooling means to you and the methods you will employ within your family. I have used this format so that individual families can show that home education is different for each family and so the reasons, methods, resources and experiences will be different. I hope that you find it a flexible document which helps you think through home education and allows you to express it in your own way.

1. **Your Philosophy of Education** (see the page below on how to write your own Philosophy of Education)
2. **Key Learning Area**s – Each Stage is divided into the Key Learning Areas and contains these pages:
   1. Stage Statements from BOS syllabus.
   2. Foundation Statements,
   3. Methodology,
   4. Resource list
   5. Ways to record learning.
   6. Ways to record progress (or add this to your educational philosophy instead)
3. **Skills and Strategies Appendix** - This is a separate document which you can refer to in your educational philosophy or in your statements as needed.

Our Philosophy of Education

Some Ideas to put into a Philosophy of Education:

Reasons why you choose to home educate your family:

* Keep your words positive and affirming and avoid negative or accusatory comment on any other form of education.
* Write your big aims, objectives and desired outcomes –

For example:

* + *To strengthen and equip your children to be successful in all areas of life – socially, academically, spiritually*
  + *To develop a love of learning*
  + *To enable children to pursue their own interests and develop their strengths;*
* If you have had a bad experience you could say “It (whatever it is) didn’t work out for us.” or “We are going see if my child is better suited to homeschooling.”

Educational Approach

Write a way in which you may approach the learning in your home, what it might look like in practice ( a typical day??) and reasons why this may suit your family;

* For example:
  + Unit studies across curriculum subjects
  + Delight Directed learning
  + Natural learning
  + Self-directed studies
  + Charlotte Mason Approach
  + Living Books approach
  + Use of Textbooks as appropriate
  + Classical Approach

Add books you may be reading which help to develop your educational approach.

Express how various parts of your home will be a rich, learning environment (art supplies available, garden beds for vegetables, garage for projects, science corner, reading areas etc) and how normal daily activities will be included as part of their learning. (chores, gardening, cooking, developing helpful systems etc)

You also may wish to include parts of the program of study which will be similar in each KLA. For example, you may find that it is better to include a simple outline of how you will take note of your child’s progress in your educational approach statement – rather than including this under each KLA.

An example may be:

*WAYS TO RECORD PROGRESS: Since we are working so closely with our children on a daily basis, we are very aware of the difficulties – their strengths and weaknesses, and can easily move them ahead or work on a certain skill if necessary. We can see their progress in a concrete way from their work samples and comparing what they did at the beginning of the year and what they were able to do at the end of the year. We will observe our children and take mental note and may take written notes of their achievements.*

## Employ a quote

Read good books and make a collection of relevant quotes that you find helpful for yourself or for telling others (and then remember where they are!)

“*Education is not the filling of a bucket but the lighting of a fire”.* W.B.Yeats

*“Self-education is the only possible education; the rest is mere veneer laid on the surface of a child's nature.”* Charlotte Mason

More good quotes to be found here: http://www.goodreads.com/quotes/tag/homeschooling

Social Interactions

Express the ways in which your children will interact with a broad cross-section of the community during the family’s normal daily and weekly activities.

For example:

*Our family relates to, and are enriched by, a broad cross-section of the community including, but not only, our neighbours and other homeschooling families.. The social interactions of our children during the family’s normal daily and weekly activities are rich in variety and interest such as….*

## Education Act 1990 (NSW Legislation)

It is good to mention these parts of the Act to show that we are aware of the legality of Home education and that education is recognized as being primarily the responsibility of the child’s parents:

**Part 2** **Objects of Act**

**4**   **Principles on which this Act is based**

In enacting this Act, Parliament has had regard to the following principles:

(a)  every child has the right to receive an education,

(b)  the education of a child is primarily the responsibility of the child’s parents,

**5**   **Principal objects of this Act**

The principal objects of this Act are as follows:

(d)  to allow children to be educated at home,

Stage 5

Key Learning Areas

# The educational program for a home schooled child in NSW must be based on six of the eight Board of Studies key learning areas for secondary education (Year 7 to Year 10). The program must include English, Mathematics, Science and Human Society and Its Environment and courses in another two of the Board’s key learning areas.

# English:

* 1. stage statements,
  2. foundation statement,
  3. methodology,
  4. resources,
  5. Ways to record learning
  6. Ways to record progress

# Math

1. stage statements,
2. foundation statement,
3. methodology,
4. resources,
5. Ways to record learning
6. Ways to record progress

# Science

1. stage statements,
2. foundation statement,
3. methodology,
4. resources,
5. Ways to record learning
6. Ways to record progress

# HSIE

1. stage statements,
2. foundation statement,
3. methodology,
4. resources,
5. Ways to record learning
6. Ways to record progress

# The educational program for a home schooled child in NSW must be based on six of the eight Board of Studies key learning areas for secondary education (Year 7 to Year 10). The program must include English, Mathematics, Science and Human Society and Its Environment and courses in another two of the Board’s key learning areas.

# Languages other than English

# Technological and Applied Studies

# Creative Arts

# Personal Development, Health and Physical Education.

# The syllabuses for secondary education are available on the Board’s website <www.boardofstudies.nsw.edu.au/syllabus\_sc>.

You can choose to teach from two out of the four Key Learning Areas listed above and then document it in a similar way.

English Stage 5 Stage Statements:

By the end of Stage 5 students respond to and compose a comprehensive range of imaginative, factual and critical texts using different modes and technologies. They enjoy, reflect on, critically assess and articulate processes of response and composition. They respond to and compose a wide range of simple and complex texts for pleasure, critical analysis and information-gathering, varying their approach according to a text's purpose, audience and context. They focus on details of texts to analyse meaning, perspective, cultural assumptions, ideologies and language.

Students use varying technologies to compose texts. They apply their knowledge of the elements that shape meaning in texts. They use a range of strategies to shape their texts to address purpose and audience in different contexts. They conform to or challenge an audience's preconceptions and expectations about content and form, and they evaluate the effectiveness of each approach. Students display a developing personal style in their personal, imaginative, critical and analytical compositions. They work through the composing process, including planning, researching, drafting, conferencing, editing and publishing. Students reflect on their composing process and how it has affected the final version of their text.

Students respond to texts from different cultures that offer a range of perspectives. In considering possible meanings, they develop sustained interpretations supported by evidence and think creatively beyond the text. They infer and interpret, and investigate the similarities and differences between and among texts. Through close and wide engagement with texts students extend their imaginations and engage with images of their real and imagined worlds. They respond imaginatively and critically to verbal and visual imagery and iconography, considering how these and other features reflect the cultural context of the text. By critically evaluating texts, students identify strengths and weaknesses and are able to articulate coherent responses. From their responses to individual texts they generalise about views of the world and strategies that are used to communicate and sustain such views.

Students reflect on their own and others' learning, assessing learning strategies and purposes to adapt their knowledge, understanding and skills to new contexts.

Language Arts / English

Foundation Statement

This is a broad statement explaining why this will be taught in your home – the purpose/vision of this subject.

For example:

We teach our children to read so they may enjoy literature, read widely, read for pleasure and research. We teach reading so we may grow in knowledge and understanding; so we may learn from others who have walked before us;

We teach our children to write so that they can interact with others- near and far. The world has become so close through the internet, and to avoid mis-understanding, we must write clearly; We want our children to be able to persuade; to encourage; to respond to news and editorials; to critically analyze information; to add information; to lead and guide others.

We teach our children to listen so that they may develop the skill of communication. By listening well, we can better understand what is being said; We can profit from someone else’s knowledge; We can gain understanding; We can learn to be careful listeners and be discerning.

In speaking, we teach our children to engage with others. We use speech to clarify our thoughts; to persuade; to encourage; to debate; to give answers and clearly expound our own beliefs, views and opinions; to enjoy good communications and to interact with a wide range of people of differing ages, cultures and walks of life.

Methodology in our Home

This is a statement explaining how you will teach this in your home – the types of strategies and activities, the practical expression of what it would look like.

For example:

*These are some of the methods we will use to teach language arts in our home:*

*Read to the children from a variety of literature including fiction and non-fiction, as well as poetry, quality prose and the Scriptures. Discuss some of the literature readings in more depth according to literary qualities such as – character, plot, themes, setting*

*Encourage personal reading from our own library and from the public library.*

*Attend dramatic performances, plays and musicals to promote a variety of literary expression.*

*Encourage our children to express themselves through narration and written expression, either with a retelling of factual events, narration of literature they have listened to, or writing their own stories based on experience or imagination to a variety of audiences (home, extended family, groups, church, nursing home etc.)*

*Teach our children to use a dictionary at the level of their ability.*

*Encourage a variety of communication methods including letter writing and emails.*

*Teach the elements of handwriting that encourage neatness and legibility, including posture.*

*Give the opportunity to use a computer keyboard, and do a typing course at the level of their ability.*

*Expose the children to foreign languages through our own use of foreign words, possible lessons in another language and through interaction with others who speak a foreign language;*

*Extend and practise their word use and spelling by playing games such as Scrabble, Upwords, Boggle, Mad Gab, Hangman, Taboo, Random writing, crosswords, wordsearch, wordfit, Rummy Roots and other word games.*

Resources:

These will change depending on the year level, topics of interest, what you have in the home, programs you use:

For example:

*Easy readers from home and local libraries*

*Phonics – Teaching Reading programs*

*Reference books, 'living books', and other books from our library and the local library.*

*Family, friends, acquaintances*

*Computer and Internet*

*Writing in context of subject areas – narrations, stories, copywork;*

*Use of Reference books to develop writing forms, correct grammar, punctuation etc – such as Write Source Books appropriate to age level;*

Ways to Record Learning:

This is a way to record what is being learned; You need to keep a diary of the learning activities of the family; It can be a teacher diary or each child can keep a record of what they do; You also need to have sample of what they have done; This does not need to be kept separate, but just accessible to demonstrate learning.

*Example of what to write:*

*A selection of the children’s dated work will be kept.*

*- A diary may be kept of significant learning activities completed by each child.*

*- Dated samples of story writing, narrations, and other English related activities will be kept, either on the computer or in each child’s folder.*

*- Each child may keep their own dated log of learning activities, either daily or weekly.*

Ways to Record Achievement and Progress

*Example:*

*A combination of approaches will be used to record the achievement and progress of the children in their education.*

*- We will observe and record the children’s achievements as they occur - for instance, language development, oral narrations, letter writing etc*

*- We will map the progress of the children by collecting samples of their work over a period of time;*

*-Written work may be displayed across the subject areas such as Personal Journals, Story Writing Books, History and Science Notebooks, Writing Copybooks – Writing Treasures, Bible Memorization books,*

*- We will assess the children’s progress over a period of time through observation and take mental notes and we may give an overview statement outlining achievement, progress and areas of need.*

*- We may add comments about learning activities we have done which meet the Objectives of the syllabus twice each year.*

English – Comments on Learning Activities

|  |  |
| --- | --- |
| **Stage 5 Statements** | **Comments / Date** |
| By the end of Stage 5 students respond to and compose a comprehensive range of imaginative, factual and critical texts using different modes and technologies. They enjoy, reflect on, critically assess and articulate processes of response and composition. They respond to and compose a wide range of simple and complex texts for pleasure, critical analysis and information-gathering, varying their approach according to a text's purpose, audience and context. They focus on details of texts to analyse meaning, perspective, cultural assumptions, ideologies and language.  Students use varying technologies to compose texts. They apply their knowledge of the elements that shape meaning in texts. They use a range of strategies to shape their texts to address purpose and audience in different contexts. They conform to or challenge an audience's preconceptions and expectations about content and form, and they evaluate the effectiveness of each approach. Students display a developing personal style in their personal, imaginative, critical and analytical compositions. They work through the composing process, including planning, researching, drafting, conferencing, editing and publishing. Students reflect on their composing process and how it has affected the final version of their text.  Students respond to texts from different cultures that offer a range of perspectives. In considering possible meanings, they develop sustained interpretations supported by evidence and think creatively beyond the text. They infer and interpret, and investigate the similarities and differences between and among texts. Through close and wide engagement with texts students extend their imaginations and engage with images of their real and imagined worlds. They respond imaginatively and critically to verbal and visual imagery and iconography, considering how these and other features reflect the cultural context of the text. By critically evaluating texts, students identify strengths and weaknesses and are able to articulate coherent responses. From their responses to individual texts they generalise about views of the world and strategies that are used to communicate and sustain such views.  Students reflect on their own and others' learning, assessing learning strategies and purposes to adapt their knowledge, understanding and skills to new contexts. |  |

Maths Stage 5 Stage Statements:

By the end of Stage 5.1, students explain and verify mathematical relationships, select and use appropriate strategies to solve problems, and link mathematical ideas to existing knowledge and understanding. They use mathematical language and notation to explain mathematical ideas, and interpret tables, diagrams and text in mathematical situations.

Students apply their knowledge of percentages, fractions and decimals to financial problems related to earning and spending money, taxation, and simple and compound interest. They simplify and evaluate numerical expressions using index laws for positive and zero indices, round numbers to a specified number of significant figures, and express numbers in scientific notation. Students apply the index laws to simplify algebraic expressions. They determine the midpoint, gradient and length of intervals on the Cartesian plane and draw graphs of linear and simple non-linear relationships.

Skills in measurement are further developed to include finding the areas of composite shapes and the surface areas of rectangular and triangular prisms. Students describe the limit of accuracy of measurements. They apply right-angled triangle trigonometry to practical situations, including those involving angles of elevation and depression. They apply the properties of similar figures to find side lengths in problems related to similar figures.

Students' statistical skills are extended to include considering shape and skewness of distributions, comparing data and data displays, and evaluating the reliability of statistical claims. They also determine the relative frequencies of events in chance experiments and calculate probabilities from information displayed in Venn diagrams and two-way tables.

**Mathematics Stage 5.2**

By the end of Stage 5.2, students use mathematical arguments to reach and justify conclusions. When communicating mathematical ideas, they use appropriate mathematical language and algebraic, statistical and other notations and conventions in written, oral or graphical form. Students use suitable problem-solving strategies, which include selecting and organising key information, and they extend their inquiries by identifying and working on related problems.

Students apply their knowledge of percentages, fractions and decimals to problems involving conversion of rates, direct proportion, and financial contexts related to compound interest and depreciation.

Students apply the index laws with integer indices to simplify expressions. They operate with algebraic fractions, expand binomial products and factorise monic quadratic trinomial expressions. They solve linear equations and use them to solve word problems. They solve linear inequalities and linear simultaneous equations. Students solve simple quadratic equations and solve monic quadratic equations by factorisation. On the Cartesian plane they draw and interpret graphs of straight lines, and simple parabolas, circles and exponential graphs. Students determine the equations of straight lines and use the properties of parallel and perpendicular lines on the Cartesian plane.

Students extend their skills in measurement to solve problems involving the surface areas and volumes of right prisms, cylinders and related composite solids. They use trigonometric ratios to solve problems in which angles may be measured to the nearest second, and problems involving bearings and angles of elevation and depression. In geometry, they use deductive reasoning in numerical and non-numerical problems, drawing on their knowledge of the properties of congruent triangles, the angle properties of polygons, and the properties of quadrilaterals.

Statistical skills are extended to include the construction of box-and-whisker plots and the calculation of interquartile range to analyse and compare data sets in appropriate data displays. Students investigate bivariate data sets and use scatter plots to describe relationships between variables. They evaluate the sources of data in statistical reports. In their study of probability, students record and determine probabilities of events in multi-step chance experiments and examine conditional language.

**Mathematics Stage 5.3**

By the end of Stage 5.3, students use deductive reasoning in problem solving and in presenting arguments and formal proofs. They interpret and apply formal definitions and generalisations and connect and apply mathematical ideas within and across substrands. They demonstrate fluency in selecting, combining and applying relevant knowledge, skills and understanding in the solution of familiar and unfamiliar problems.

Students operate with irrational numbers and extend their knowledge of the number system to include all real numbers. They analyse and describe physical phenomena and rates of change. Algebraic skills are extended to expanding the special binomial products and factorising non-monic quadratic expressions, using a variety of techniques. Students solve complex linear equations, non-monic quadratic equations, simple cubic equations, and simultaneous equations involving one linear and one non-linear equation. They solve practical problems using linear, quadratic and simultaneous equations. They change the subject of literal equations. Students generate, describe and graph straight lines, parabolas, cubics, hyperbolas and circles. They use formulas to calculate midpoint, gradient and distance on the Cartesian plane, and to determine the equations of straight lines.

Students solve problems involving the surface areas and volumes of pyramids, cones and spheres, and related composite solids. They explore similarity relationships for area and volume. They determine exact trigonometric ratios for 30°, 45° and 60°, extend trigonometric ratios to obtuse angles, and sketch sine and cosine curves for angular values from 0° to 360°. Students apply the sine and cosine rules for finding unknown angles and/or sides in non-right-angled triangles. They use Pythagoras' theorem and trigonometry to solve problems in three dimensions.

Their knowledge of a wide range of geometrical facts and relationships is used to prove general properties in geometry, extending the concepts of similarity and congruence to more generalised applications. Students prove known properties of triangles, quadrilaterals and circles.

Students use standard deviation to analyse data, and interpolate and extrapolate from bivariate data using lines of best fit. They investigate statistical reports and explore how data is used to inform decision-making processes.

Mathematics

Foundation Statement

This is a broad statement explaining why this will be taught in your home – the purpose/vision of this subject.

For example:

*Personalize your statement here…*

Methodology in our Home

This is a statement explaining how you will teach this in your home – the types of activities, the practical expression of what it would look like.

For example:

*Maths will be taught through everyday experiences and in a hands-on approach. We will use living books, concrete examples, day to day experiences developing number, space and measurement*

*We will encourage the children to learn about the world round them through real life including cooking, shopping, playing with sand and water, counting and so on.*

*Everyday measuring tools, including kitchen and bathroom scales and implements, rain gauge, thermometer, timepieces, rulers and tape measures, calendars will be used and applied in a natural context.*

*We will use and teach abstract concepts when the children are developmentally ready and work through an appropriate workbook to reinforce thinking skills learned and to give the opportunity to do repetitive maths exercises when necessary.*

Resources:

These will change depending on the year level, topics of interest, what you have in the home, programs you use:

For example:

*Everyday measuring tools*

*Life of Fred Mathematics*

*Base Ten Blocks (MAB)*

*Resources and education materials from the International Year of Astronomy website.*

*Computer*

*Calculator*

*Construction toys including Lego, Duplo, wooden blocks, and craft materials*

Ways to Record Learning:

This is a way to record what is being learned; You need to keep a diary of the learning activities of the family; It can be a teacher diary or each child can keep a record of what they do; You also need to have sample of what they have done; This does not need to be kept separate, but just accessible to demonstrate learning.

Example of what to write:

*A diary may be kept of significant learning activities completed by each child.*

*- Dated work throughout the maths workbooks.*

*- Each child may keep their own dated log of learning activities, either daily or weekly.*

*- Photographs may be taken of various learning activities or constructions.*

Ways to Record Achievement and Progress

Example:

*A combination of approaches will be used to record the achievement and progress of the children in their education.*

*- We will observe and may record the children’s achievements in number, space and measurement as they occur.*

*- We will map the progress of the children by collecting samples of their work over a period of time - including dated workbooks*

*- We will set tasks that incorporate the children applying their understanding and skills outlined in the objectives and learning activities.*

*- We will assess the children’s progress over a period of time and may give an overview statement outlining achievement, progress and areas of need.*

*- We may add comments about learning activities we have done which meet the Objectives of the syllabus twice each year.*

Maths – Comments on Learning Activities and Progress

|  |  |
| --- | --- |
| **Math Stage 5 Stage Statements** | **Comments / Date** |
| By the end of Stage 5.1, students explain and verify mathematical relationships, select and use appropriate strategies to solve problems, and link mathematical ideas to existing knowledge and understanding. They use mathematical language and notation to explain mathematical ideas, and interpret tables, diagrams and text in mathematical situations.  Students apply their knowledge of percentages, fractions and decimals to financial problems related to earning and spending money, taxation, and simple and compound interest. They simplify and evaluate numerical expressions using index laws for positive and zero indices, round numbers to a specified number of significant figures, and express numbers in scientific notation. Students apply the index laws to simplify algebraic expressions. They determine the midpoint, gradient and length of intervals on the Cartesian plane and draw graphs of linear and simple non-linear relationships.  Skills in measurement are further developed to include finding the areas of composite shapes and the surface areas of rectangular and triangular prisms. Students describe the limit of accuracy of measurements. They apply right-angled triangle trigonometry to practical situations, including those involving angles of elevation and depression. They apply the properties of similar figures to find side lengths in problems related to similar figures.  Students' statistical skills are extended to include considering shape and skewness of distributions, comparing data and data displays, and evaluating the reliability of statistical claims. They also determine the relative frequencies of events in chance experiments and calculate probabilities from information displayed in Venn diagrams and two-way tables.  Mathematics Stage 5.2    By the end of Stage 5.2, students use mathematical arguments to reach and justify conclusions. When communicating mathematical ideas, they use appropriate mathematical language and algebraic, statistical and other notations and conventions in written, oral or graphical form. Students use suitable problem-solving strategies, which include selecting and organising key information, and they extend their inquiries by identifying and working on related problems.  Students apply their knowledge of percentages, fractions and decimals to problems involving conversion of rates, direct proportion, and financial contexts related to compound interest and depreciation.  Students apply the index laws with integer indices to simplify expressions. They operate with algebraic fractions, expand binomial products and factorise monic quadratic trinomial expressions. They solve linear equations and use them to solve word problems. They solve linear inequalities and linear simultaneous equations. Students solve simple quadratic equations and solve monic quadratic equations by factorisation. On the Cartesian plane they draw and interpret graphs of straight lines, and simple parabolas, circles and exponential graphs. Students determine the equations of straight lines and use the properties of parallel and perpendicular lines on the Cartesian plane.  Students extend their skills in measurement to solve problems involving the surface areas and volumes of right prisms, cylinders and related composite solids. They use trigonometric ratios to solve problems in which angles may be measured to the nearest second, and problems involving bearings and angles of elevation and depression. In geometry, they use deductive reasoning in numerical and non-numerical problems, drawing on their knowledge of the properties of congruent triangles, the angle properties of polygons, and the properties of quadrilaterals.  Statistical skills are extended to include the construction of box-and-whisker plots and the calculation of interquartile range to analyse and compare data sets in appropriate data displays. Students investigate bivariate data sets and use scatter plots to describe relationships between variables. They evaluate the sources of data in statistical reports. In their study of probability, students record and determine probabilities of events in multi-step chance experiments and examine conditional language.  Mathematics Stage 5.3    By the end of Stage 5.3, students use deductive reasoning in problem solving and in presenting arguments and formal proofs. They interpret and apply formal definitions and generalisations and connect and apply mathematical ideas within and across substrands. They demonstrate fluency in selecting, combining and applying relevant knowledge, skills and understanding in the solution of familiar and unfamiliar problems.  Students operate with irrational numbers and extend their knowledge of the number system to include all real numbers. They analyse and describe physical phenomena and rates of change. Algebraic skills are extended to expanding the special binomial products and factorising non-monic quadratic expressions, using a variety of techniques. Students solve complex linear equations, non-monic quadratic equations, simple cubic equations, and simultaneous equations involving one linear and one non-linear equation. They solve practical problems using linear, quadratic and simultaneous equations. They change the subject of literal equations. Students generate, describe and graph straight lines, parabolas, cubics, hyperbolas and circles. They use formulas to calculate midpoint, gradient and distance on the Cartesian plane, and to determine the equations of straight lines.  Students solve problems involving the surface areas and volumes of pyramids, cones and spheres, and related composite solids. They explore similarity relationships for area and volume. They determine exact trigonometric ratios for 30°, 45° and 60°, extend trigonometric ratios to obtuse angles, and sketch sine and cosine curves for angular values from 0° to 360°. Students apply the sine and cosine rules for finding unknown angles and/or sides in non-right-angled triangles. They use Pythagoras' theorem and trigonometry to solve problems in three dimensions.  Their knowledge of a wide range of geometrical facts and relationships is used to prove general properties in geometry, extending the concepts of similarity and congruence to more generalised applications. Students prove known properties of triangles, quadrilaterals and circles.  Students use standard deviation to analyse data, and interpolate and extrapolate from bivariate data using lines of best fit. They investigate statistical reports and explore how data is used to inform decision-making processes. |  |

Science Stage 5 Stage Statements:

By the end of Stage 5 students use scientific inquiry by actively engaging in using and applying the processes of Working Scientifically to increase their understanding of and about the world around them. By engaging in scientific inquiry, students develop their understanding of science ideas and concepts, how scientific knowledge is refined over time and the significance of scientific evidence in evaluating claims, explanations and predictions.

Students formulate questions or hypotheses to be investigated scientifically. They apply scientific understanding and critical thinking skills to suggest possible solutions to identified problems. Individually and collaboratively they plan and undertake a range of types of first-hand investigations to accurately collect data using appropriate units, assessing risk and considering ethical issues associated with the method. They design and conduct controlled experiments to collect valid and reliable first-hand data.

In Stage 5 students process, analyse and evaluate data and information from first-hand investigations to draw conclusions consistent with the evidence, identifying sources of uncertainty and possible alternative explanations for findings. They assess the validity and reliability of claims made in secondary sources. They evaluate the methods and strategies they and others use and ways in which the quality of data could be improved, including the appropriate use of digital technologies. They communicate science ideas for specific purposes and construct evidence-based arguments using appropriate scientific language, conventions and representations.

Students apply models, theories and laws to explain phenomena and situations involving energy, force and motion. They explain the concept of energy conservation, by describing energy transfers and transformations within systems.

Students describe changing ideas about the structure of the Earth, origins of the universe and the diversity of life on the Earth to illustrate how models, theories and laws are refined over time by the scientific community as new evidence becomes available. They describe situations where advances in scientific understanding may depend on developments in technology, and that technological advances are frequently linked to scientific discoveries.

Students explain how scientific understanding has contributed to knowledge about global patterns of geological activity and interactions between global systems. They analyse interactions between components and processes within biological systems and their responses to external changes. They use scientific evidence to assess whether claims, explanations and predictions are supported and can be used to evaluate predictions and inform decisions related to contemporary issues.

Students explain the organisation of the periodic table, chemical reactions and natural radioactivity in terms of atoms. They describe how different factors influence the rate of chemical reactions and the importance of a range of types of chemical reactions in the production of substances.

By the end of Stage 5 students describe how the values and needs of contemporary society can influence the focus of scientific research and technological development in a variety of areas, including efficiency of use of electricity and non-renewable energy sources, the development of new materials, biotechnology, and plant, animal and human health. They outline examples of where the applications of the advances of science, emerging sciences and technologies significantly affect people's lives, including generating new career opportunities.

Science

Foundation Statement

This is a broad statement explaining why this will be taught in your home – the purpose/vision of this subject.

For example:

*As we teach Science, we will break it into its units and topics and we want our children to enjoy investigating things around them, researching, experimenting and discovering …..*

*Personalize your statement here…*

# Methodology in our Home

This is a statement explaining how you will teach this in your home – the types of activities, the practical expression of what it would look like.

For example:

*To study Science includes observation of nature around us, (sketch, look up field guides, research plants and animals); applying our knowledge in practical ways such as raising animals and planting and tending a vegetable patch; recording findings and information in Science notebooks by sketching and writing; reading and researching from a variety, age appropriate science resources, including interest/ topical books from the library, home school science textbooks; Viewing appropriate TV shows, documentaries and videos; Giving kids science experiments to do and find out science truths.*

Resources:

These will change depending on the year level, topics of interest, what you have in the home, programs you use:

For example:

*Reference books, 'living books', and other books from our library and the local library.*

*Resources and education materials from the International Year of Astronomy website.*

*Science Kits*

*Internet*

*Television where appropriate*

*The world around us*

*Apologia Science Curriculum – for different ages (both independent study and family study)*

*Supercharged Science – Website, Experiments, DVDs, Lesson Notes, Tele-classes and email a professor*

*Chemistry Kit – Chem3000*

*Can you feel the force? DK Physics book by Richard Hammond*

*Other DK Science Books*

Ways to Record Learning:

This is a way to record what is being learned; You need to keep a diary of the learning activities of the family; It can be a teacher diary or each child can keep a record of what they do; You also need to have sample of what they have done; This does not need to be kept separate, but just accessible to demonstrate learning.

Example of what to write:

*A diary of significant learning activities completed by each child.*

*Dated samples narrations, writing and projects will be kept*

*Each child may keep their own dated log of learning activities, either daily or weekly.*

*Photographs may be taken of specific learning activities or projects*

Ways to Record Achievement and Progress

This is a way to record the children’s achievement and progress through the years;

Example:

*A combination of approaches will be used to record the achievement and progress of the children in their education.*

*- We will observe and may record the children’s questions, observations, and projects and their understanding of scientific concepts and technology.*

*- We will map the progress of the children by collecting samples or photos of their work over a period of time - including dated nature journal entries and projects*

*- We will assess the children’s progress over a period of time and may give an overview statement outlining achievement, progress and areas of need.*

*- We may add comments about learning activities we have done which meet the Objectives of the syllabus twice each year.*

Science – Comments on Learning Activities and Progress

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| **Science Stage 5 Statements** | **Comments / Date** |
| By the end of Stage 5 students use scientific inquiry by actively engaging in using and applying the processes of Working Scientifically to increase their understanding of and about the world around them. By engaging in scientific inquiry, students develop their understanding of science ideas and concepts, how scientific knowledge is refined over time and the significance of scientific evidence in evaluating claims, explanations and predictions.  Students formulate questions or hypotheses to be investigated scientifically. They apply scientific understanding and critical thinking skills to suggest possible solutions to identified problems. Individually and collaboratively they plan and undertake a range of types of first-hand investigations to accurately collect data using appropriate units, assessing risk and considering ethical issues associated with the method. They design and conduct controlled experiments to collect valid and reliable first-hand data.  In Stage 5 students process, analyse and evaluate data and information from first-hand investigations to draw conclusions consistent with the evidence, identifying sources of uncertainty and possible alternative explanations for findings. They assess the validity and reliability of claims made in secondary sources. They evaluate the methods and strategies they and others use and ways in which the quality of data could be improved, including the appropriate use of digital technologies. They communicate science ideas for specific purposes and construct evidence-based arguments using appropriate scientific language, conventions and representations.  Students apply models, theories and laws to explain phenomena and situations involving energy, force and motion. They explain the concept of energy conservation, by describing energy transfers and transformations within systems.  Students describe changing ideas about the structure of the Earth, origins of the universe and the diversity of life on the Earth to illustrate how models, theories and laws are refined over time by the scientific community as new evidence becomes available. They describe situations where advances in scientific understanding may depend on developments in technology, and that technological advances are frequently linked to scientific discoveries.  Students explain how scientific understanding has contributed to knowledge about global patterns of geological activity and interactions between global systems. They analyse interactions between components and processes within biological systems and their responses to external changes. They use scientific evidence to assess whether claims, explanations and predictions are supported and can be used to evaluate predictions and inform decisions related to contemporary issues.  Students explain the organisation of the periodic table, chemical reactions and natural radioactivity in terms of atoms. They describe how different factors influence the rate of chemical reactions and the importance of a range of types of chemical reactions in the production of substances.  By the end of Stage 5 students describe how the values and needs of contemporary society can influence the focus of scientific research and technological development in a variety of areas, including efficiency of use of electricity and non-renewable energy sources, the development of new materials, biotechnology, and plant, animal and human health. They outline examples of where the applications of the advances of science, emerging sciences and technologies significantly affect people's lives, including generating new career opportunities. |  |

Human Society and Its Environment Stage 5 Stage Statements

History

By the end of Stage 5, students describe, explain and assess the historical forces and factors that shaped the modern world and Australia. They sequence and explain the significant patterns of continuity and change in the development of the modern world and Australia. They explain and analyse the motives and actions of past individuals and groups in the historical contexts that shaped the modern world and Australia. Students explain and analyse the causes and effects of events and developments in the modern world and Australia. Students explain the context for people's actions in the past. They explain the significance of events and developments from a range of perspectives. They explain different interpretations of the past and recognise the evidence used to support these interpretations.

Students sequence events and developments within a chronological framework, and identify relationships between events across different periods of time and places. When researching, students develop, evaluate and modify questions to frame an historical inquiry. They process, analyse and synthesise information from a range of primary and secondary sources and use it as evidence to answer inquiry questions. Students analyse sources to identify motivations, values and attitudes. When evaluating these sources, they analyse and draw conclusions about their usefulness, taking into account their origin, purpose and context. They develop and justify their own interpretations about the past. Students develop texts, particularly explanations and discussions, incorporating historical arguments. In developing these texts and organising and presenting their arguments, students use historical terms and concepts, evidence identified in sources and they reference these sources. Students will have undertaken a relevant site study either by visiting an actual site or through a virtual source.

History

Foundation Statement

This is a broad statement explaining why this will be taught in your home – the purpose/vision of this subject.

For example:

*As a family, we want our children to learn …..*

*Personalize your statement here…*

Methodology in our Home

This is a statement explaining how you will teach this in your home – the types of activities, the practical expression of what it would look like.

For example:

*We intend to look at time periods chronologically, and explore the events, geography and the characters therein.*

*Using this framework, we will read and may memorize some important facts and dates. We intend to use a variety of resources such as living books, historical fiction novels, atlases and interesting information books such as Usborne Time Traveller series. We will read books together as a family, orally narrate from them, create written narrations, draw pictures and maps, make projects from the time period being studied, visit museums and at times, make costumes and celebration feasts – live out the time period in a variety of ways; We will include Australian and Aboriginal studies in this manner, reading Australian history books such as “The Wide, Brown Earth” as well as going to local history museums when we explore different parts of the Australia.*

Resources:

These will change depending on the time period being studied/ what you have in the home, programs you use:

For example:

*Our Sunburnt Country, 1964. Arthur Baillie.*

*Reference books, 'living books', and other books from our library and the local library.*

*The Bible*

*Newsademic - a Children's newspaper used for educational resources, home schooling and English study -* [*http://www.newsademic.com/*](http://www.newsademic.com/)

*Behind the News*

*Television where appropriate*

*Internet*

*Museums*

*Family, friends and acquaintances.*

For example:

*Read aloud Historical Fiction and Literature according to the time period;*

*Spine books include: Greenleaf Famous Men Books, Story of the World;*

*References: Streams of Civilization; Kingfisher History Encyclopedia;*

*Usborne Time Traveller Series;*

*Independent Reading books include: Leif the Lucky, Knights, Adam of the Road, A Minstrel in the Tower, The Door in the Wall, Under Drake’s Flag, River of Grace (John Calvin), The man who laid an egg, Squanto, friend of Pilgrims, If you lived in Colonial times…. Etc*

*Exhibitions available in the year;*

*Videos on the time period being studied;*

*Cultural activities such as festivals;*

*History Days and celebrations such as creating a medieval feast, including food, costumes, speeches and presentations;*

Ways to Record Learning:

This is a way to record what is being learned; You need to keep a diary of the learning activities of the family; It can be a teacher diary or each child can keep a record of what they do; You also need to have sample of what they have done; This does not need to be kept separate, but just accessible to demonstrate learning.

Example of what to write:

*A diary of significant learning activities may be completed by the parent or child.*

*Dated samples narrations, writing and projects will be dated and kept*

*Each child may keep their own dated log of learning activities, either daily or weekly.*

*Photographs may be taken of specific learning activities or projects*

Ways to Record Achievement and Progress

Example:

*A combination of approaches may be used to record the achievement and progress of the children in their education.*

*- We will observe the children as they act and interact within their family, amongst their friends and acquaintances and with society*

*- We will map the progress of the children by collecting samples of their work over a period of time - including projects, narrations and writing etc*

*-Some work will be kept in a History Notebook – with narrations, maps, essay writings, pictures, artwork, period art work, examples of life at the time period being studied;*

*-Photographs may be used to document projects, special days, outings, presentations, excursions;*

*- We will assess the children’s progress over a period of time and may give an overview statement outlining achievement, progress and areas of need; This may be included in the diary;*

*- We may add comments about learning activities we have done which meet the Objectives of the syllabus twice each year.*

HSIE – Comments on Learning Activities and Progress

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| **History Stage 5 Stage Statements** | **Comments / Date** |
| By the end of Stage 5, students describe, explain and assess the historical forces and factors that shaped the modern world and Australia. They sequence and explain the significant patterns of continuity and change in the development of the modern world and Australia. They explain and analyse the motives and actions of past individuals and groups in the historical contexts that shaped the modern world and Australia. Students explain and analyse the causes and effects of events and developments in the modern world and Australia.  Students explain the context for people's actions in the past. They explain the significance of events and developments from a range of perspectives. They explain different interpretations of the past and recognise the evidence used to support these interpretations.  Students sequence events and developments within a chronological framework, and identify relationships between events across different periods of time and places.  When researching, students develop, evaluate and modify questions to frame an historical inquiry. They process, analyse and synthesise information from a range of primary and secondary sources and use it as evidence to answer inquiry questions.  Students analyse sources to identify motivations, values and attitudes. When evaluating these sources, they analyse and draw conclusions about their usefulness, taking into account their origin, purpose and context. They develop and justify their own interpretations about the past.  Students develop texts, particularly explanations and discussions, incorporating historical arguments. In developing these texts and organising and presenting their arguments, students use historical terms and concepts, evidence identified in sources and they reference these sources.  Students will have undertaken a relevant site study either by visiting an actual site or through a virtual source. |  |

Other Resources

Skills Ideas and Possible Strategies in the Key Learning Areas

This document and other resources can be found on my website: <http://www.design-your-homeschool.com/homeschool-planning.html>

If you have suggestions or comments, I am happy for you to contact me.

Please use the contact form on the website: [www.design-your-homeschool.com](http://www.design-your-homeschool.com)

I hope this has been a helpful planning resource for your family,

Marianne Vanderkolk