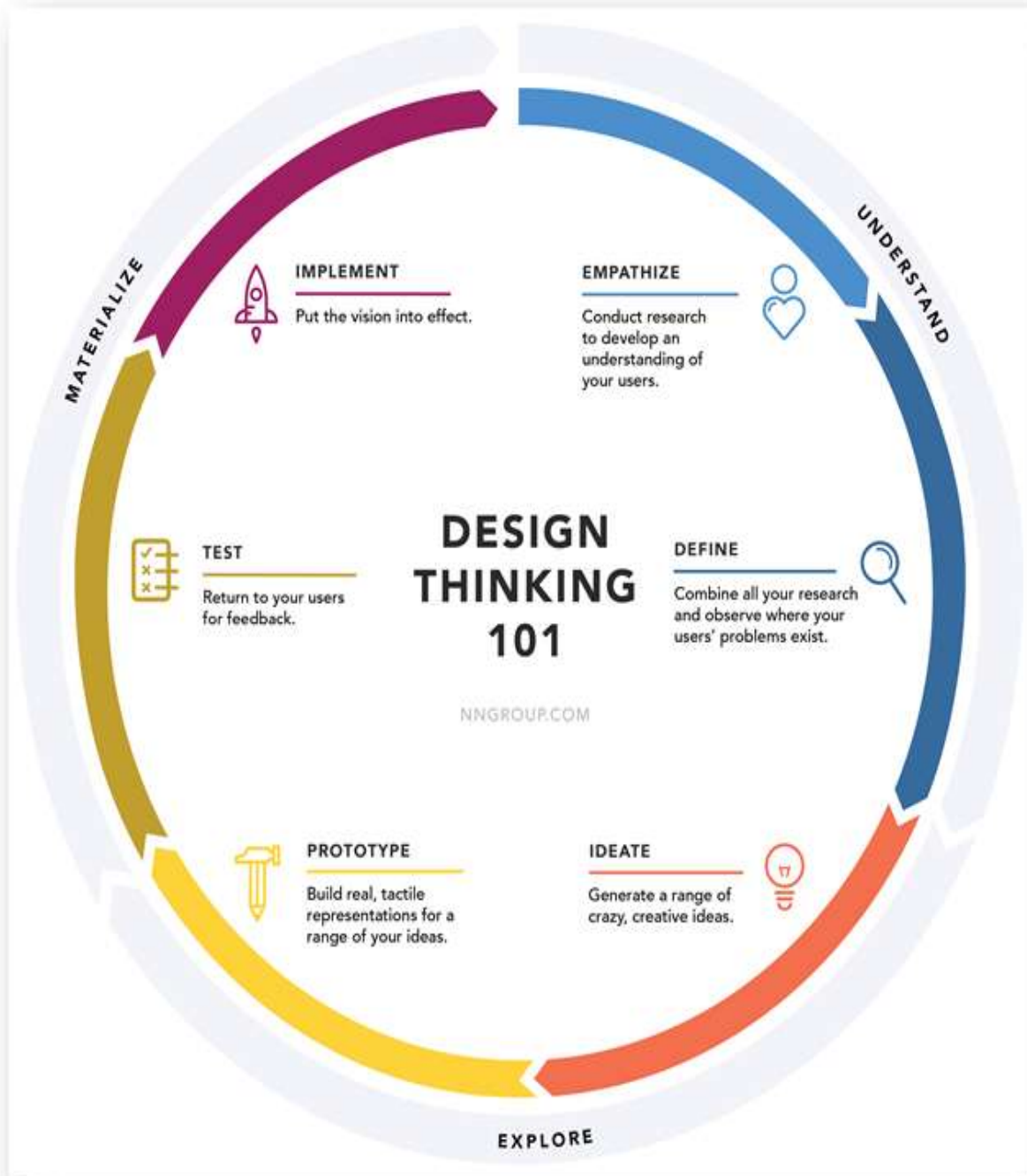


Design Thinking in drafting Science books 2018-19 session



Ideate : Making science teaching bigger and broader than inquiries into topics we have chosen for units. Using big ideas as the framework for building vertically and horizontally aligned science.

Define: Research and work done until now, We used:

- NCF topics.
- Science strands and PYP framework.
- Science books and forced integration or stand alone.
- Mapped big ideas to POI in 2017-18 but the efforts remained in paper only.
- Science Centre for promoting scientific skills with some experiments.
- There is a huge amount of science content in Grade VI. However, there is no evidence of huge success in ASSET or SOF or in 7th or 8th grades.
- Apparently, there is no problem. Teachers are happily engaged. Students are engaged. There is a tangible amount of science content being loaded in UOIs.

Empathize:

The question is- while these planned yet random science thrusts in each year level are successfully implemented, as a school, are we grooming scientists?

Are we evidently developing scientific knowledge and skills?

Are teachers consciously and diligently building scientific knowledge and skills?

Are they aware of the vertical scope and sequence? Are students mildly aware of the current scope and vertical scope?

Is the content in units being truly inquired into?

Do the teachers know the borders of the topic, what to assess, how to assess and what to focus on?

How much is student led and how much is teacher led?

Implement:

As a self-actualized school, we have been evolving from time to time with new understanding and new methods.

While justice has been more than done in teaching science and no apparent problems have been detected, ambition and aspiration of the school is to make science more deep and fundamental.

And that is how 'Science draft books' have been used in 2018-19 session.

What do the books feel and look like?

- Using the big ideas, content has been drafted keeping the age appropriateness.

- Only 3 level books have been made.

Level 1; Grades 1 & 2

Level 2: Grades 3 & 4

Level 3: Grades 5 & 6

- All big ideas were mapped to the science strands.

Materials & Matter: BG1

Forces & Energy: BG 2,3&4

Earth & Space: 5&6

Living Things: BG 7,8,9 & 10

- All level books have these strands mapped to big ideas and age appropriate content.

- Books may be simple black/white prints compiled into loosely tied folders.

- Content is drafted to make it student friendly.

- They are drafted largely in a Constructivist approach where acorns can read on their own and understand more than 50% of it on their own. In groups, they can learn 30% more. Teachers will help in the rest of the 20%.

- Content is drafted in such a way that it focuses largely on enduring understanding and important to know.
- Prompts are included to inquire more.
- Except in a few topics, acorns need not learn anything beyond the content given.
- Science centre will plan the experiments or hands on activities and support the teachers.

- **Experiments or elaborate activities were not added in the book. This will help in de-cluttering the book and help in focusing only on the important content.**
- All sources have been given credit.
- Where instructions were given for self/peer or teacher led study, clarity of purpose and flow of work has been given.
- Pictures may be used but not necessarily, as teachers are expected to make support videos or presentations to support understanding. Where need be, multiple copies of some pictures can be laminated and used by all classes. This can be the resource bank.
- Teachers can plan additional worksheets/tasks. But tasks given in the draft book either as inquiry or group tasks should be done diligently.
- Assessments should largely be 'for' or 'as' learning. Completely avoid 'of' learning. Only then, science will begin to excite the imagination of acorns.
- Heads should critically scrutinize the assessment tasks before the teachers use them in classes.
- Teachers have to focus more on scientific skills, concepts and scientific temper than on content.

Prototype

The final draft will be done by March 2019 and science books can be printed.



Test [Session 18 - 19]

2018-19 session has been the testing phase where the content, implementation and outcome will be constantly monitored.

Test 2 - Session 19 - 20 [Extensions]