SKILLS FOR LIFE

Process and Craftsmanship Skills developed through the Middle Program

THE HERITAGE SCHOOL. GURGAON

About the document

"SKILLS FOR LIFE: Craftsmanship and Process Skills to be developed through the Middle Program", is an endeavour to define a clear road map and milestones for developing Culture of Inquiry, Craftsmanship and Character through the Middle Years. The idea is to provide students with multiple opportunities across different subject areas and domains to develop, practice and hone these skills in order to be equipped to figure out and understand their immediate environment and contribute effectively towards it and the world at large.

Acknowledgement

This document is inspired and guided by the work of Expeditionary Learning Schools, Outward Bound and Gandhi ji's Nai Talim. The skill document owes its genesis and conceptualization to **Disha India Centre for Experiential Learning**. The current draft is the outcome of the intensive work done by Disha India in the field of experiential learning and assessment with educators of the Middle Program in The Heritage School, Gurgaon.





What is a Skill?

A Skill is a proficiency that is acquired through experience and focused practice. To be skilled is to be able to perform a learned activity well at will.

Why do we need to develop skills?

In a world where knowledge is growing exponentially, a child is required to learn and unlearn very fast. Acquiring knowledge is not sufficeent –the ability to create knowledge is important. Skills help the child to conceptualize and understand the world on her own and build their knowledge base. Having right skills set makes children self-learner and learner for life. Developing a skill is similar to teaching the hungry man how to fish rather than giving him to fish.

Mastering content knowledge is not the sole aim of Education today. We want students to be able to effectively apply their knowledge and understanding in authentic contexts, beyond school. Developing Skills is essential for this to happen.

How are skills developed?

Skills are developed and fine tuned through repeated practice. Important facotors in developing skills are

- Demonstration –showing children how to do it. Children need to see right examples and way of doing things.
- Scafolding –breaking the skill into small actions steps and taking children stepwise from one to step to the next. Giving enough time for practice at each step. Skill building is slow in the begining.
- Giving specific feedback at each step of the skill building. Also repeated deminstration is important.
- Making children work in small teams of diverse abilities and encouraging children to learn by seeing each other.
- It takes time to develop a skill –and most importantly the skill building process is slow in the begining and also it happens in discrete steps. It never happens in a linear way...

In the Middle Program, the focus is on the following two groups of Skills:

Process Skills

Skills required for performing various steps involved in research, inquiry and conceptual understanding across a range of subject areas.

Craftsmanship Skills

Craftsmanship is a way of doing things. It is about how we manage and relate with resources, time and people around. It is an attitude –attitude of doing things right and with rigour. It determines our approach to learning and living.

Process Skills

Process Skills are required for performing various steps involved in research, inquiry and conceptual understanding across a range of subject areas.

Students apply certain processes to make sense of content knowledge, and arrive at their own understanding of how the world works. These processes occur naturally and spontaneously in their minds, and constitute Process Skills.

Examples of such skills include processes of Observing, Recording Observations, Collecting and Interpreting Data, Asking Questions and Solving Problems. These are frequently used in all subject areas as well as in life beyond school.

It is important for students to enhance their process skills in order to become autonomous and life-long learners, who are comfortable in learning content knowledge on their own, and in applying their knowledge in authentic contexts, within and beyond school.

Process Skills

- 1. Observation and Recording
- 2. Data Collection and Analysis
- 3. Designing and Asking Questions
- 4. Defining and Solving Problems
- **5.** Sorting and classification

1. OBSERVATION AND RECORDING

Level	Observable Indicators
Level 3	Is aware of what enables and hinders him/her to make observations
	Makes very detailed observations, noting minute details
	Records observations in the appropriate format (table, diagrams, bulleted points)
	Observe connections between parts
	Sees underlying patterns, connections and cycles
	Makes observations from multiple positions to achieve different perspectives.
Level 2	Observes fine details
	Observes differences between similar objects or events
	Observes similarities between different objects or events
	Observes the sequential order of events
	Records observations in the format given
	Records observations through diagrams that are well labeled
	Records observations sequentially in bulleted points
	Creates 2 D and 3D illustrations from direct observation
	Repeats observations to ensure accuracy.
	Distinguishes between observations, conclusions, inferences and predictions.

Level 1	Uses senses to gather information
	Observes an object, event or phenomenon or an event with a disciplined sense of attention
	Reports observations orally in details
	Records observations in writing

Learning Targets for OBSERVATION AND RECORDING

- · I can observe samples and specimens with focused attention.
- · I can use all my senses while making observations.
- · I can figure out patterns emerging out of my observation.
- · I can make minute observation, using tools like magnifying glass and microscopes.
- · I can record observations in the format provided to me.
- · I can record my observations in detail.
- · I can record my observations sequentially in bulleted points.
- · I can select the appropriate format for recording my observations.
- · I can record observations in the form of detailed, well labeled diagrams that closely resemble the object being observed.

2. DATA COLLECTION AND ANALYSIS

Level	Observable Indicators
Level 3	Figures out patterns, causal relationships and change over time in the data
	Represents data in the form of graphs of various kinds
	Willingness to accept factual evidence
	Willingness to check whether conclusions are consistent with further evidence
Level 2	Accurately collects data
	Identifies the best sources to collect data
	Records data in appropriate formats
	Infers and concludes based on data
	Figures out patterns in the data
	Suggests and designs the appropriate Data collection tool
	Quantifies qualitative data
	Converts raw data into an appropriate form to address the purpose of collecting the data

Level 1 Appreciates the need to collect data

Collects data from a variety of sources

Records all data

Suggests sources for collection of data

Arrives at a conclusion based on the data that is unbiased

Learning Targets for DATA COLLECTION AND ANALYSIS

3. DESIGNING AND ASKING QUESTIONS

Level	Observable Indicators
Level 3	Raises critical questions that probe, and facilitate deeper analysis
	Questions show a concern for justice and equality, and for the environment
Level 2	Can hold on to the tension of not knowing
	Asks questions based on hypothesis
	Identifies questions that can be answered by his/her own investigation
	Asks questions to anyone if he/she can be of help (irrespective of age, background, etc)
Level 1	Asks questions to get information about objects, events and people
	Asks questions that are well articulated, and sharp
	Knows exactly what he/she is wanting to know or understand
	Asks relevant questions
	Tries to figure out on his/her own before seeking help
	Curious about the world

Learning Targets for DESIGNING AND ASKING QUESTIONS

- · I can raise critical questions that probe, and facilitate deeper analysis.
- · I can raise questions that show a concern for justice and equality, and for the environment.
- · I can hold on to the tension of not knowing.
- · I can identify questions that can be answered by my own investigation.
- I can ask questions to anyone if he/she can be of help (irrespective of age, background, etc).
- · I can ask questions to get information about objects, events and people.
- · I can ask questions that are well articulated.
- · I can covert exactly what I want to know or understand into a question.
- · I can ask questions that are relevant to my area of study.

4. DEFINING AND SOLVING PROBLEMS

Level	Observable Indicators
Level 3	
Level 2	Able to narrate the problem accurately
	Articulates the problem in the form of a question
	Plans in detail before starting
	Conducts research using a variety of sources
	Thinks of alternate solutions without limiting oneself
	Able to narrow down to a solution, arriving at a decision after weighing various pros and cons
	Reviews the chosen solution to check the extent to which the solution is solving the problem
Level 1	Spends enough time in defining the problem

Learning Targets for DEFINING AND SOLVING PROBLEMS

- · I can narrate/explain the problem accurately.
- I can articulate the problem in the form of a question. I can break the problem into steps for comprehending it.
- · I can plan in detail before starting the process of looking for a solution.
- · I can conduct research using a variety of sources while working on solution.
- · I can depict the problem situation in the form of drawings/pictures/flow charts to understand it better.
- · I can think of alternate solutions.
- I can review the chosen solution to check the extent to which the solution is effective.
- · I can express my strategy using appropriate vocabulary.
- · I can share my problem solving strategy confidently.
- · I can evaluate various strategies and select the most efficient strategy to solve the given problem.
- · I can spend enough time in defining the problem.
- · I can recheck my solution for accuracy.
- · I can relate a new problem situation to my own experience in order to understand it.

5. SORTING and Classification

Level	Observable Indicators
Level 3	Classifies objects with similar characteristics or properties into at least two sets and two subsets.
	Identifies items such as rocks, minerals, and organisms using various classification keys.
	Studies a set of very similar objects to find the odd one out based on a criteria which is not directly visible
Level 2	Studies a set of objects to arrive at various criteria on the basis of which these objects can be grouped together.
	Groups objects and events using various characteristic/properties as the criteria.
	Uses tables, Venn Diagrams and other graphic organizers to compare and contrast a set of objects.
Level 1	Points out similarities and differences in things present around.
	Separates a set of objects into two groups based on a single physical characteristic.
	Sorts objects on the basis of the given criterion.
	Sequences a set of objects on the basis of size.

Process skills Development and Assessment Grid

		Assessment			
Skills	Experience of understanding the need for skill i.e. why child needs to have the skill. How things will change for him/her once he gains the proficiency	Demonstratio n	Breaking skill into small doable units; making an step-wise development plan for children	Practice and specific feedback; developing the ability to self- assess and correct	Designing the performance of proficiency
Observations and Recording					
Data collection and Analysis					
Designing Questions					
Defining and Solving Problems					
Sorting and Classifications					

Process skills Progression

In each Grade we will take two skills i.e. one skill every semester. Three skills will get repeated twice in 4 years of middle program. We need to identify and map the skills progression across 4 years.

Skills	Grade 4		Grade 5		Grade 6		Grade 7	
Skiiis	Semester 1	Semester 2	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2
Observations and Recording								
Data collection and Analysis								
Designing Questions								
Defining and Solving Problems								
Sorting and Classifications								

Craftsmanship Skills

What is Excellence? How to build a culture of excellence?

Excellence is an ethic –the ethic of striving for perfection through continuous improvement and rework. It requires continuous planning and review, action and reflection. There is no goal or end objective to it–actually, it is a way of life. As Ron Berger says, 'If you are going to do something, I believe, you should do it well. You should sweat over it and make sure it is strong and accurate and beautiful and you should be proud of it.' This is excellence. And it is not limited to work/action–it includes excellence in thoughts as well as excellence in spirit and character.

The key to excellence is this: It is born from a culture. When children enter a family culture, a community culture, or a school culture that demands and supports excellence, they work to fit into that culture. A culture of excellence transcends race, class, and geography; it doesn't matter what color, income or background the children come from. Once those children enter a culture with a powerful ethic, that ethic becomes their norm. It is what they know.

The essence of excellence is 'Whatever is worth doing, it is worth doing well.'

¹ I believe that work of excellence is transformational. Once a student sees that he or she is capable of excellence, that student is never quite the same. There is a new self-image, a new notion of possibility. There is an appetite for excellence. After students have had a taste of excellence, they are never quite satisfied with less; they are always hungry. When the teachers at the Austine School for the Deaf pointed out to Sonia that many students would not obsess over their work as she does, her reply was quick: This school has ruined me for life, she said. I am never satisfied with anything until it's almost perfect. I have to be proud of it.

²I believe the achievement of students is governed to a large degree by their family culture, their neighborhood culture, and their school culture. Students may have different potentials, but, in general, the attitudes and achievements of students are shaped by the culture around them – Students adjust their attitudes and efforts in order to fit into the culture. If the peer culture ridicules academic effort and achievement –it isn't cool to raise your hand in class, to do homework, to care openly about school –this is a powerful force. If the peer culture celebrates investment in school – it's cool to care –this is just as powerful. Schools need to consciously shape their cultures to be places where it is safe to care, where it's cool to care. What if being normal in a school, fitting in, means caring about your work and treating others with respect? Schools need to reach out to family and neighborhood cultures to support this.

Where do we begin to build this culture? How do we start? There is no easy answer or correct answer to this. In a culture where much has to change it is difficult to say there is one correct place

¹ An Ethic of Excellence- Ron Berger

² An Ethic of Excellence- Ron Berger

to begin. Ron Berger says, 'My personal passion is a culture built around beautiful student work, so I always feel inclined to begin with the student's work.'

What is craftsmanship?

In any creative /productive work there is no higher compliment fellow workers give to each other than this: That guy is a craftsman. This one word says it all. It connotes someone who has integrity and knowledge, who is dedicated to his work and who is proud of what he does and who he is. Someone who thinks carefully and does things well is demonstrating craftsmanship in thoughts and action. Craftsmanship is excellence manifested in thoughts, action and character.

How does one relate with the work is very important? Does she see it as a job/duty to be performed for living or a medium of creation and expression of one's potential? When children work with/through crafts they develop a relationship with the work. And this relationship with the 'doing' builds and shapes the character and the productive capacities of children –capacity to learn, create, relate and act.

Crafts and their design, tools, processes, raw materials and artisans have their own discipline, which deeply impacts children's ability to think, create and relate. Working with natural materials and resources of crafts help children to understand the local context/system better –and also develop the respect for resources, nature and most importantly for the self-employed artisans.

Children develop real confidence when they create with/through hands i.e. Self-esteem from accomplishments, not compliments as Ron Berger says in his book 'An Ethic of excellence.' Actually, brain learns through hands –complex and abstract conceptual understanding gets build when we start creating things with hands. This not builds confidence but also creates the abundance and sharing mindset which leads to sustainable and systemic way of living.

Ron Berger, in his book 'An Ethic of Excellence' writes...

I am pleased that the teachers are sympathetic to their students but I explain that I have a different perspective. We can't first build the students' self-esteem and then focus on their work. It is through their own work that their self-esteem will grow. I don't believe self-esteem is built from compliments. Students who are struggling or producing lousy work know exactly how poor their performance is -compliments never seem genuine. All the self-esteem activities and praise in the world won't make them feel like proud students until they do something they can value.

When they begin to make discoveries that impress their classmates, solve problems as part of the group, put together projects that are admired by others, produce work of real quality, a new self-image as a proud student will emerge.

When I share beautiful student work from my classroom with others, I am often asked how the students came to be this way, how they came to care so much about doing quality work. This is what I say: Most of my students have been doing this since they were four years old. They entered a school culture where high-quality projects are celebrated everywhere in the building...the classroom is the hub of creation, the project workshop. The overall quality of work that emerges from the workshop is a concern for every member in it. If any student is failing to succeed or producing work without care, it is a concern for every student. There is a sense of whole class pride in the quality of learning and products in the workshop, and there is a sense of peer pressure to keep up with the standard. These projects are made public and every student knows it. Anything weak reflects on all of us.

Projects are structured to make it difficult for students to fall far behind or fail. They are broken down into clear components and students progress through checkpoints to insure they are keeping up. In my classroom, we often have large public checklists on the wall of all the components due for a certain project, and student monitors give updates at our morning meeting of who is caught up and who is falling behind. Through conferences and critique sessions with teachers and peers

Middle Program Craftsmanship Skills

- 1. Planning and Review
- 2. Working through Drafts and the skill of critiquing
- 3. Working in Crews
- 4. Systems thinking
- 5. Doing more with less –minimizing wastage

1. PLANNING AND REVIEW

Level	Observable Indicators
Level 3	Keeps him/herself on track by using short and long term goals
	Enjoys working on complex problems
	Maintains a high level of motivation at all times
	Is willing to experiment and take risks
	Identifies resources and training required for accomplishing the task
	Sets realistic goals
	Is Innovative (creates a new improved variety, finds a substitute, when a recommended material or object needed for construction is not available)
	Imaginative, does not look for the 'right' way of doing things
	Imagines alternatives (Asks what if?)
	Values each passing idea, keeps a notebook and pen handy to jot down ideas
	Designs models and simulations and uses them to illustrate and explain phenomena and systems
	Creates products that meet authentic real world needs

Level 2	Self motivated and able to persevere with difficult tasks
	Able to manage stress
	Compares possible courses of action
	Foresees what may go wrong, what to be careful about
	Realistically estimates the time needed for each step
	Writes the plan in the form of action steps
	Assigns roles and responsibilities within the team
	Plans and attempts to follow time line
	Reviews the plan before and after starting
	Open to changing and adapting the plan
	Experiments multiple times, trouble shoots, and removes shortcomings in construction
	Appreciates the need for accuracy in measurement
	Has an eye for detail
	Has a sense of aesthetics
	Identifies patterns, shapes and forms
	Designs and constructs models to clarify explanations, demonstrate relationships, and solve needs
Level 1	Describes what a working on a task (performance/product) entails, by comprehending the written instructions given
	Breaks down the task into smaller steps
	Attentive to the task at hand
	Able to ideate various structural constructions
	Able to design and construct simple physical models to clarify explanations and show relationships

Makes sketches and doodles of different versions of designs

Selects the appropriate resources

Learning Targets for PLANNING and REVIEW

I can break down the task given into action steps, based on my understanding of what exactly is the end product/performance.

I can write my plan in the form of detailed action steps.

I can realistically estimate the time needed for each step.

I can assigns roles and responsibilities within the crew, taking into account that work is distributed fairly.

I can compare possible courses of action.

I can foresee what may go wrong and what to be careful about.

I can review the plan before, during and after the task.

I can change and adapt the plan as and when the need to do so arises.

2. WORKING THROUGH DRAFTS and THE SKILL OF CRITQUING

Level	Observable Indicators
Level 3	Assesses his/her own work objectively
	Seeks feedback
	Puts time aside to reflect on his/her strengths and weaknesses
	Produces work that is accurate and aesthetically strong
	Thinks of strategies for improving quality.
Level 2	Explores others' ideas and suggestions and does not reject them
	Able to fine tune and add finishing touches to work
	Makes several drafts of the same piece of work
	Aware of a variety of presentations, layouts, structures and styles
	Documents all drafts of work systematically and in good condition
	Able to examine good samples of work and draw out criteria
	Able to name what good quality looks like, by examining strong and weak models of work
	Follows critique protocols established by the crew and the class
	Able to separate the person from the task
	Able to critique own and others' work
	Able to cope up with failure
	Demonstrates perseverance and responsibility
	Demonstrates ownership and pride by attending to details
	Works with experts and learns the techniques of the trade

Level 1 Reviews his/her work at regular intervals

Reworks as per specific feedback given

Makes a few drafts of a piece of work

Is able to assess his/her work on the basis of checklists that have various criteria mentioned

Corrects errors brought to notice by the teacher in notebooks.

Learning Targets for WORKING THROUGH DRAFTS

- · I can examine good samples of work and draw out criteria of good quality work.
- · I can seek feedback on my work.
- · I can make several drafts of the same piece of work, incorporating feedback given on my previous draft.
- · I can read carefully the written feedback given to me in my notebooks, and work on them.
- · I can document all drafts of my work systematically.
- · I can explore the ideas and suggestions given by others and do not reject them.
- · I can fine tune and add finishing touches to my work.
- · I can assess my own work with objectively.
- · I can critique others' work objectively, and offer feedback that is kind, specific and helpful.
- · I can put time aside to reflect on my strengths and weaknesses.

3. WORKING IN CREWS

Level	Observable Indicators
Level 3	Stays calm in a crisis
	Tolerant to ambiguity
	Manages change and transition with ease
	Helps others to arrive at a decision
	Speaks out against unfairness
	Takes responsibility of the groups' failures and shortcomings
	Objectively evaluates own and others' arguments
	Humble in areas of strength
	Encourages others and does not get drawn into others' negativity
Level 2	Speaks clearly and to the point
	Confidently expresses his/her own opinion
	Able to take directions from others
	Trusts own and others' abilities
	Attempts to understand others' point of view
	Sensitive to the feelings of others
	Waits patiently and takes turns
	Keeps a positive attitude when things get difficult
	Listens with the intent to Understand

Level 1	Contributes actively to the discussion/work happening
	Supports fair distribution of work
	Uses language that helps not hurts
	Open to new ideas and learning

Learning Targets for WORKING IN CREWS

- · I can confidently express my own opinion, speaking clearly and to the point.
- · I can consider my crew mates' points of view while taking a decision.
- · I can take directions from others.
- · I can wait patiently for my turn.
- · I can keep a positive attitude when things get difficult.
- · I can listen with the intent to understand.
- · I can contribute actively to the discussion/work happening.
- · I can support fair distribution of work at all times.
- · I can use language that helps not hurts.
- · I can stay calm in a crisis.
- · I can speak out against any act that I consider unfair.
- · I can take responsibility of my crew's failure and shortcomings.
- · I can objectively evaluate my own and others' arguments.
- · I can help support others in their work, while being humble in my areas of strength.
- · I can encourage others, and do not get drawn into others' negativity.
- · I can be attentive to the task at hand.
- I can manage deadlines.
- · I can do all work well, irrespective of whether the work is of my interest or not.

· I can keep my crew on track by using short and long term goals.

- · I can find joy in attempting to solve complex problems.
- · I can maintain a high level of motivation at all times.

· I can experiment and take risks.

4. SYSTEMS THINKING

Level Observable Indicators

Level 3 Infers patterns and trends that have emerged over a specified period of time and bring out the reasons for the change.

Infers and identifies thinking and beliefs that affect a particular action.

Extrapolates behavior into the future based on current trends.

Identifies and explains why similarities and differences exist between patterns of change.

Creates a simple model of a system by aggregating detailed information to represent the whole-system perspective on an issue or process.

Identifies and explains how a potential solution could lead to unintended and unwanted consequences

Identifies long term and short term consequences and explains why these consequences have resulted out of specific actions.

Level 2 Identifies a time frame for change based on an understanding of sequence of events.

Sees and describes change as a continuous trend over time.

Identifies and explains a system's distinct component's trend over a period of time.

Identifies similarities and differences between patterns of change

Explains clearly how a parts of a system come together to make a whole.

Describes how cause and effect repeat circularly over time.

Identifies and Explains how and why actions cause or may cause short term and long term results

Identifies and explains how actions can cause wanted and unwanted

consequences for a specific situation

Level 1 Identifies different events and puts them in order

Identify various elements within a System.

Identify the important elements that are changing over time.

Explains how elements have changed in the System and how they affect one another.

Describes change as a series of events that are connected in time to produce a pattern of behavior

Explains how one part causes a change in another in a system.

Explains cause and effect as happening in a circular nature.

Is able to work with others to understand their point of view.

Keeps on open mind to listen, understand and incorporate other's points of views to understand a problem.

Explains how actions affect short term and long term outcomes.

Learning Targets for Systems Thinking

Craftsmanship skills Development and Assessment Grid

		Assessment			
Skills	Experience of understanding the need for skill i.e. why child needs to have the skill. How things will change for him/her once he gains the proficiency	Demonstration and strong sample/model of work	Breaking skill into small doable units; making an step-wise development plan for children	Practice and specific feedback; developing the ability to selfassess and correct	Designing the performance of proficiency
Planning and Review					
Working through Multiple drafts and critiquing					
Working in Crews					
Systems thinking					
Doing more with less					

Craftsmanship skills Progression

In each Grade we will take two skills i.e. one skill every semester. Three skills will get repeated twice in 4 years of middle program. We need to identify and map the skills progression across 4 years

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Systems thinking								
Doing more with less								