# CHAPTER 3
# EMPIRICAL CASE STUDIES

## 3.1 Museum collection as a resource for learning – Practical Participatory Approach

The benefits of learning in a museum setup or on a site, has many aspects that have been discussed by various scholars. Research has shown that museum visitors seek experiences that cross the boundaries of learning, doing, and recreation (Kotler et al. 2008). Learning is the reason people go to museums, and learning is the primary "good" that visitors to museums derive from their experience (Falk & Dierking 2000). Museums are considered as informal learning environments as learning is based on objects and experiences rather than text, which is perhaps the key distinction between traditional school and nonschool learning (Paris 2002). The scenario in India is such that the learning from museums is not an essential aspect of school programs nor included strictly in syllabi. To strengthen our cultural heritage and national identity, the curriculum should enable the younger generation to reinterpret and re-evaluate the past with reference to new priorities and emerging outlooks of a changing societal context (National Curriculum Framework 2005). Thus the role of museum emerges as a non formal institution of learning and teaching.

As per the National Curriculum Framework (2005) 'Teaching should utilise greater resources of audio-visual materials, including photographs, charts and maps, and replicas of archaeological and material cultures'. The social institutions, in which a child is brought up, should make him or her sensitive to respect and promote the heritage richly spread all over the country. Though many multipurpose museums, NGOs and private organisations have been creating active change in this thought process but there is a vast scope of making these institutions as stronger platform for learning of children and youth. Young people in particular want to engage in interactive experiences, which give them the chance to manipulate the museum environment, play games, and participate fully in the museum activities (Kotler et al. 2008). These immersive experiences enhance the quality of learning.

This chapter will highlight the practical sessions that were conducted in order to see how some representative museums use objects/sources to impart the knowledge /awareness/ information of heritage, especially archaeological collection. Based on the data collection and literature survey museums at various levels of administration, national and regional were chosen for empirical studies.

The National level museums were observed active in conducting gallery based activities through their websites and published material. The museums that were visited in regional context were connected to central or state government and were researched on the basis of information available in secondary sources such as museum journals, books, program or exhibition catalogues. This was a survey of websites wherever updated by the organisation was also considered to draw inferences on selecting the particular museum. After going through a proper channel of permissions, the activities were then planned and conducted in museums, on site, in non – government setups and in schools. The case studies were of both types; planned and unplanned. Executing a program or activity sheet module lies on the jurisdiction of the administration and thus was planned as per the situation and time frame available to the researcher.

## National Level Case Studies

### 3.2 CASE STUDY 1

### MASK MAKING AND TERRACOTTA ART WORKSHOP AT NATIONAL MUSEUM, NEW DELHI

The nucleus of collection at National museum, New Delhi is the objects that were sent for exhibition from Rashtrapati Bhavan to London in 1947. Museum has a comprehensive selection of Indian art, ranging from the prehistoric to the late medieval periods. There are collections from Central Asia and pre-Columbian art of Americas (Punja 1991). The National museum houses biggest collection of earliest artefacts from various Indus Valley Civilization sites “Harappa gallery” which is the most visited and popular

gallery. The permanent gallery on Harappa comprises of artefacts made up of TC, stone, shell, steatite, metal etc. and at few places the panels, images and maps of archaeological sites of India are also on display.

National Museum conducts regular programs focusing on various collection themes based on their permanent and temporary exhibitions. In last decade, National Museum has conducted sessions on processes like Lost wax casting, stone tool making, bead making etc. that were correlated with the archaeological collection housed in the museum. Museum organised hands on sessions like digging a trench like an archaeologist, tactile tours of reserve collections, theatrical and dance performances during temporary exhibitions, workshops on making replicas of seals etc. that were more or less associated with archaeological collection of the museum. It has been conducting gallery walks and activity sessions apart from special lectures and movie shows on archaeological heritage.

National museum has been conducting programs like poster making, art and craft, madhubani or miniature painting making etc. especially for children on occasions like International Museum Day (18$^{th}$ May), Foundation Day (18$^{th}$ December) and Children's Day (14$^{th}$ November) as part of education dissemination endeavour. These activities were advertised in newspaper and were open to all ages (children). It was outsourced and the facilitators were usually National awardees or artists of eminent status in the field. Ministry of culture was funding agency for all these programs. Programs like 'Know your museum' were popularly organised during the holidays in order to attract and link children to museum. In 2013, an activity on 'Seals and Sealing' was done focusing on seal making technique (replica) that reflected thematic workshop specifically on archaeological collection. National museum had created a kit and had a museo-bus in 1990s that was popular in its time. An exhibition that was conducted on archival images of National museum, is record of those outreach activities of past. Also for training professionals, State museum curators, National museum acted as nodal agency and provided almost a month long program as 'In service course'. Lecture series and summer programs had been a regular feature of museum since 2014.

During work, as an education team member and museum professional in National Museum, researcher acted as an observer and coordinator for some workshops related to archaeology. After gaining this experience, few activities were specifically planned to cater the children that were to explore the new aspect of archaeological and anthropological collections. Apart from the archaeological collection, researcher also conducted two sessions during the annual summer workshops that focused on the anthropological collection of the museum.

**Activity 1: Hands on North East Crafts**

'Playtime at National Museum' is the summer program conducted in National Museum each year since 2015. This program is specially planned to cater to school level children to learn and participate in hands on sessions based on temporary and permanent exhibition galleries of the museum. It is a regular program that focuses on object based learning.

In 2016 ($29^{th}$ & $30^{th}$ June 2016), a practical session was conducted related to the arts and crafts of North East India. The dressing patterns, with the significance of accessories, rituals, burial practices, all aspects that were related to craft and dress the people of the region wear, jewellery they adorn, head dress they prefer or the other craft articles, were taught to selected group of children by using paper as a medium.

The session started with Powerpoint presentation and gallery tour by the researcher to provide information of the cultural materials of the region to the students. Mr. Sushmit Sharma, the second co-ordinator of the activity described various practices and meanings that can be derived from the variety of material or colours used to create various dresses, ornaments or religious objects. Then children were asked to do the paper craft techniques by choosing whatever they wish to replicate. Various paper craft techniques were adopted for making the children to do and learn these cultural aspects using museum objects. This was a sort of brainstorming, as many galleries housed at the second floor of National Museum, are less visited by children. School groups usually avoid/overlook these exhibitions due to its location on second floor, thus children visiting the museum miss the aspects of its significance as

valuable heritage of country. These myriad cultural aspects that are still continuing as living traditions are indispensible part of cultural heritage and the ancient practices have deeper meanings that must be preserved, promoted and propagated for generations to keep them alive.

Another program planned at National Museum was based on "Masks" displayed in the various galleries at museum. A significant category namely, 'Masks' in the National Museum collection is also used in special occasions, mark certain events ward off evil spirits or celebrate and recreate historical events. Masks which are invaluable to theatre, drama and enactments of various kinds, are interesting artefacts that signify glorious past and also the present beliefs and traditions of the society. National Museum houses variety of masks in its galleries that are significant evidences of human past. Beginning from a five thousand year old TC mask of Harappan collection, till present day wood, metal or paper machie masks, all reflect the special attribute of the craft being indispensible part of heritage among masses. Metal is used as a popular medium of making sculptures and masks nowadays; these metal masks (usually votive) are used in activities and cultural occasions throughout the country. During summer program 2017, Playtime at National Museum, a session focusing the mask collection was conducted. The activity entitled as 'Carve the Mask' in metal (Fig. 3.2.1, 3.2.2).

The group of children, who were participating, was given a brief tour around the museum showing variety of masks starting from the terracotta masks of Harappa till the dance and ritual masks of various parts of India displayed in Anthropology gallery of National museum. Making this connection was essential to highlight the fact that the mask making traditions has been deep rooted in the heritage of India. Scholars have opined that terracotta masks of Harappan Civilization might have been used for story telling. The expressive eyes, moods and strings attached indicate the practical uses. They might have been totemic symbols as well, but the Mask making tradition is a continuing living heritage. Mask is the tangible form of the intangible heritage preserved since ages.

Fig.3.2.1 Mask carving session

Fig. 3.2.2 Masks created in 'Carve the Mask' activity

Again in 2017, a theatre workshop was jointly organised by National Museum, New Delhi and Herithart (Delhi based theatre group), in which a process based method was adopted with a short performance by the participants of classes 5$^{th}$ to 10$^{th}$ of various schools. The performance revolved around Harappa gallery. The Harappa Gallery at National Museum is one of the most popular galleries and students of various schools, colleges and scholars of various fields are

equally attracted to this gallery explore the collection so as to understand testimonies of the ancient past. To compliment the performance and create props for the final day of theatre, one day workshop on clay modelling was conducted by the researcher that emphasised on the terracottas displayed in the gallery. This workshop was aimed to enable participants to understand and appreciate the artistic skills of the artisans of Indus Valley Civilization. Children recreated almost all varieties of Harappan terracottas including wheeled toys and terracotta bangles. Objects made by the participants were used in the play which not only brought a sense of happiness and encouragement to the children but also enhanced their performance. It was a fun learning process whereby children had active involvement with the concept of artefacts of Harappa. The students receive and imbibe information that must have been highlighted in many books but these kind of activity sessions enable children to learn better being in close proximity of the subject and object. Museums are places where visitors encounter authentic, aesthetic, inspirational, and learning experiences (Kotler et.al 2008).

While contemplating on the practical aspects of hands on session can be very well co-related with school textbooks of children of class $6^{th}$. It was observed that curriculum of children of these above mentioned classes having NCERT pattern get a background idea of Harappan toys. Books of NCERT also show terracotta cart and animal (unicorn) figurine mentioned as toys found from the remains of Indus Valley. The NCERT (Class VI) book states that “Many terracotta toys have been found and children must have played with these”. Few such examples are anthropomorphic bird with wheels, birds with cages, climbing monkey, and squirrels on tree stump displayed at National Museum, New Delhi which show movement of the toys in action as well.

Such amalgamation of text, practical activity and object in close proximity of child enables them to imbibe the concept and understand its co-relation with archaeological findings of human past which is in a way their pre-historic culture. Thus such immersive experiences (Fig. 3.2.3) create environment of learning with fun.

Fig. 3.2.3 A participant recreating Harappan wheeled toy in clay, National Museum, New Delhi

## 3.3 CASE STUDY 2

### ALLAHABAD MUSEUM, PRAYAGRAJ, UTTAR PRADESH

The Allahabad Museum located in the picturesque Moti Lal Nehru Park is among the National level museums of India. According to the Annual report of museum, in 2011-12, it was recorded that Allahabad museum is a very active institution in the heart of the city that caters to variety of audiences of different age groups. The museum comprises of sixteen galleries housing a wide range of artefacts. The artefacts on display include prehistoric and Indus Valley antiquities, textiles, terracottas of archaeological sites, stone sculptures, weapons, bronzes, seals, sealings, beads, coins, illustrated manuscripts, miniature paintings, Buddhist Thankhas, medieval land grants etc. There are some important *firmans* of the Mughal kings also on display. The museum displays the documents and related information of Nehru and of the Freedom Movement. The vehicle which carried Gandhiji's ashes to Sangam in 1948 is also maintained and displayed in the premises of the museum.

As an active informal institution of learning, Allahabad museum conducts various summer vacation programs, children week programs, regular screening of documentaries, special lectures, and workshops or programs that directly relate to galleries and collection in the museum. The museum has a modeling section having an array of replicas that are sold to visitors and even sent to various schools all over the country. Modeling section in the museum aids educational institutions and Navodaya Vidyalayas (around list of 300 is in records in adjoining areas) in establishing museum corners under the scheme of Government of India. This concept of creating and promoting 'Heritage corners' in schools by donating replicas is one of the commendable activity of the museum. The concept of 'Heritage corners' indicates that museum is establishing a partnership with school, and combining object based education with classroom teaching. This is an effective way to distribute museum offerings.

Allahabad museum being one of the premier one of its kinds, in India, involves schools and student groups all throughout the year on different occasions. It has skilled and highly qualified staffs to formulate and implement programs that have good response from various sections of society. Museum organizes both academic and non-academic programs that keep the soul of heritage alive and attracts lot of visitors. The Allahabad Museum is committed not only to preserve heritage but also to create awareness among the different sections of the society. To achieve its objective it organizes seminars, symposia, lectures and exhibitions from time to time and publishes its proceedings. Educational short term courses of general nature are organized for the benefit of children & housewives. Short term workshops on clay modelling and painting are organized to stimulate creative instinct among the children. From young to old age persons, this active institution imparts knowledge and services to every section of the society. It has varied displays from prehistoric collection to the modern art, and variety of educational aids like books, information brochures, replicas, documentary shows etc. for promoting and disseminating the significance of collection housed in museum.

The **Art Appreciation** course organized by museum has been introduced in 2011. Its objective was to inculcate the sense of appreciation among people

from various segment of the society towards the cultural property and artistic endeavour of the country. As a part of this venture, illustrated lectures on archaeological exploration and excavation were delivered by museum education and curatorial staff. Other lectures were on lines of art, architectural heritage, Indian Ocean archaeology, conservation and manuscript digitization. During the course of data collection, the researcher could attend the art appreciation classes. In the year 2013, the themes of lectures were architectural and cultural heritage in India, ancient paintings, archaeology as a subject and its meaning (by Prof. V.D Mishra), forts in India, ornamental art, jewellery, folk art, Oman archaeological research project by Dr. Sunil Gupta. This kind of lectures organised by this is a clear indication of the efforts they do for the popularisation of the heritage and archaeological past of India. This also highlights the high quality educational activities offered by the museum.

During the annual summer workshops in year 2013, practical hands on sessions were conducted by researcher from 22$^{nd}$ May to 2$^{nd}$ June 2013. Recently (2019) as up gradation of museum has been initiated, few galleries that were used during the research work practical sessions have been renovated but through the medium of worksheets and photographs, the session can be understood.

The Practical research work done at Allahabad museum consisted of the following aspects;

- information about the museum was gathered from library, museum brochures and other publications,
- gallery surveying was done to check potential material for planning and designing of activities,
- interviewing staff about past activities and guidance about resources available in hand,
- preparation of hands on activity sessions,
- orientation of participants : in auditorium and in galleries,
- activity conduction and participatory observation,
- feedback, conclusions and evaluation.

**Detailed Structure of the activity**

While gathering information, emphasizing on archaeological collection it was observed that, the Rock Art gallery of this museum had the largest collection of photographs of prehistoric paintings anywhere displayed in India. Valuable possessions of the *Sculpture gallery* had Bharhut sculptures, Buddha and Bodhisattva statues, Bhumara (M.P) Shiva temple remains, and other collection from Kausambi and Jamsot etc. The museum has got a vast collection of terracottas from the important archaeological sites of Kausambi, Jhusi and Bhita. Apart from the actual artefacts the books were referred in library to draw appropriate sketches and create images for PowerPoint presentations for orientation sessions, worksheets etc.

During the *Summer program* workshop from 22nd May to 22nd June 2013, researcher observed and conducted sessions for the study. Summer program was open to all age groups and covered skills related to art, dance, computers, photography and sculpture based on museum collection. It was conducted daily for 3 hours in the museum. The above said month long program made the participants feel interested to explore more galleries of the museum than to concentrate on the activity only. The interested people filled forms as a response to a newspaper advertisement, and were finally selected on 21st May through an interaction cum museum exploration activity with the education section officers at the museum.

**Hands On endeavour**

Interaction with the school teacher and a freelance artist, Mrs. Kaveri Vij (Fig. 3.3.1) acting as the resource person for the art teaching segment of the summer program conducted by the museum. This was in order to understand the pattern of her session and the idea behind the activity. Mrs. Vij's long time experience with the museum in conducting the activities had provided immense input through questionnaire (Fig. 3.3.2a, b, c) and personal interaction. As per her feedback in the questionnaire, the museum teaching is

different from school as here the elements of Indian art, basics of art and traditional art can also be taught at the same time, since in schools she has to go as per the age/class of children.

Fig. 3.3.1 Interview and interaction with the resource person

Respected Sir/Madam,

Please fill in the following details about yourself and answer the questionnaire. This data will be used only for research purpose. (Please do not leave any place for answer as blank).

1. **Personal details**

Name – Mrs. Kaveri Vij

Designation – Art Teacher / freelance Artist

Contact Number – 9415515093 Email ID – Vij.kaveri@gmail.com

Name of organisation - St. Mary's Convent Inter College, Thornhill Road, Allahabad, 01.

2. **About The Museum Program**

i) How many years you have been part of these museum programs?

– 6 Years.

ii) How many days (with dates) this year the program (in which you are resource person) is being conducted? What are its main highlights?

(1) National Painting Camp based on Jamini Roy's work of Art from 25th to 29th April & Painting Exhibition from 5th May to 4th June'13.

(2) Summer Workshop of Art – from – 22 May to 29 May'13

iii) What is the mode of teaching in program and material used? Which part of collection/gallery will be used as an aid to the program/workshop?

I teach with the help of black board & chalk & from my memory. Sometimes Painting & Sculpture gallery will be used and Some times previous Workshops and of Course Some time nature (Garden).

1

Fig. 3.3.2a: Filled questionnaire by resource person (page 1)

iv) What services that you feel is strength of this museum to program?

To make awareness about Indian Culture & Art among young generation specially School/College Children. Museum Conduct workshops, Camps, Seminars; discussion programs, etc.

v) What kind (age level/class) of group of children/participants are parts of these programs presently?

In this recent Summer workshop there is no age bar limits from 6-7 years to 25-30 years Students has taken part, All are now in Art.

vi) Please give your suggestions for any addition or change in these programs (if any).

length (No.) of days will be increased and proper class room, rest is fine.

vii) Who are the people those who plan or assist in providing these educational services through museum. (E.g. Keeper in Museum/staff members/school teachers etc.)

I think Director of Museum & Keeper & of course staff members helps me time to time.

2

Fig. 3.3.2b: Filled questionnaire by resource person (page 2)

viii) Please mention in brief the significant educational programs that were done in past (2012) in this museum.

Last Year 9 was taken Same Summer - work Shop About 30 to 40 children (different age) was take part. On that workshop 9 teach illustration (how to make picture from Stories).

ix) In your opinion, which section of museum display is informative and education oriented, clear and informative for school children. (Probably most attractive to students those who visit this museum).

9 think, Painting Section and Sculpture Section and of course Nehru Section also attract to school children because it's in their syllabus of Studies.

x) In your opinion how these programs are different when conducted in a school/educational institution or in a museum.

Yes, there is great difference between in School & museum's Programs. In school 9 teach according to class or age wise but in museum 9 teach about Indian art, basics of art and our traditional art also.

Signature: [signature] Date: 26.5.13

Thank you, your contribution is much appreciated.

3

Fig. 3.3.2c: Filled questionnaire by resource person (page 3)

Chalk board was her teaching aid and she made children draw various ornamental designs during the week long session. The students brought their own drawing sheets, colours and other related material for these sessions. Sometimes this kind of program focus on drawing pictures from stories, illustrations and poster making activity.

After interaction with participants and resource person, and observation of the activities during the initial days of the program, lead to the conduction of hands-on activity session for the students on the theme of archaeological collections.

From 29th May to 2nd June 2013, the museum allowed the researcher to serve as a resource person to conduct activities related to archaeological and miniature painting galleries. During the workshop the participants were made to visit 3 to 4 galleries comprising of pre-history collection, sculptural display and miniature paintings. Gallery visits started with orientation to the participants about the displays. Also some kind of audio- visual aids were used for making them understand how to perceive and observe things in the gallery. They were asked to go through the display and thoroughly look and gather information for activity and feedback. In this phenomenon the participants themselves explored gallery, remained active and enthusiastic to get maximum information out of what they see in the exhibits so that they interact more confidently after the gallery visit.

**Activity sessions – Prehistory & Protohistory collection**

**Activity A**: Prehistoric gallery (30th May 2013) had collection of antiquities of Indus valley civilization, excavated site Kausambi, material and photographs of rock shelters of India and other objects related to these contexts. This gallery was selected as the first resource as it had good amount of archaeological exhibits that can be used for study and observations.

Day one of the workshop (30th May 2013) was started with a Powerpoint presentation (Fig. 3.3.3) related to display on Indus art and its various art forms. Powerpoint presentation was an admixture of photos of museum collection and comparative antiquities with brief information that served a

purpose to make participants understand the objective of visiting a gallery followed by an activity to perform.

Fig. 3.3.3 Orientation by the researcher for the participants

Fig.3.3.4: Close observation by participants

Participants were given an orientation before entering the gallery. Following that, thereafter a picture card of a showcase display selected from gallery was shown to participants so as to make them understand the important elements to observe in the gallery display. Participants were (Fig. 3.3.4) exploring the gallery collection as per their understanding and age level. Children of lower age group were interested in easier objects like jars, beads, and sculpture as compared to elder participants who read and observed label information and wrote on the paper.

After this exploration, a feedback and interactive session was conducted. Thereafter the participants were given worksheets (Fig. 3.3.5, 3.3.7, 3.3.8) prepared by researcher, to fill in whatever they learnt from the gallery visit. Some participants who needed more time to work on the worksheet, made a point to revisit the gallery and check those information pieces they left out during first visit. This activity enabled the participants to observe and acquire better understanding and learning from objects in a more meaningful way.

Fig.3.3.5: Participant answering the activity sheet

Participants who understood the concept of activity and collection were confidently working with the worksheet and answered well. Few participants described aspects which they felt might have been the reasons or probable answers of certain question in relation to the identity of an artefact or collection. The drawing in Fig. 3.3.6 reflects creativity and observation skills of person in understanding the concept apart from filling worksheet. Here the participant described the objects such as seals, beads, perforated pottery, terracotta cart and bulls, blades etc. the artefacts that she (Srishti) was able to see as part of the exploration activity.

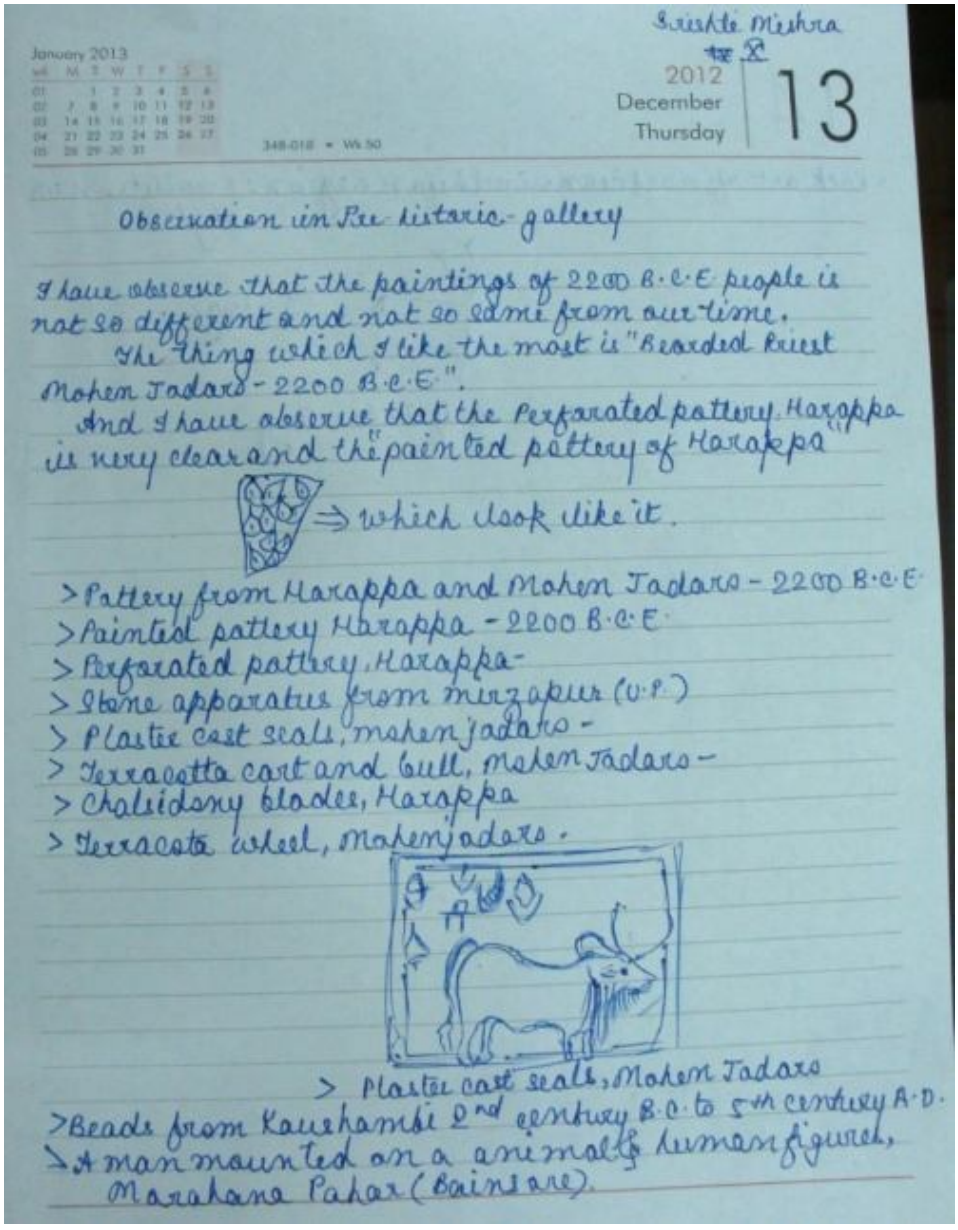
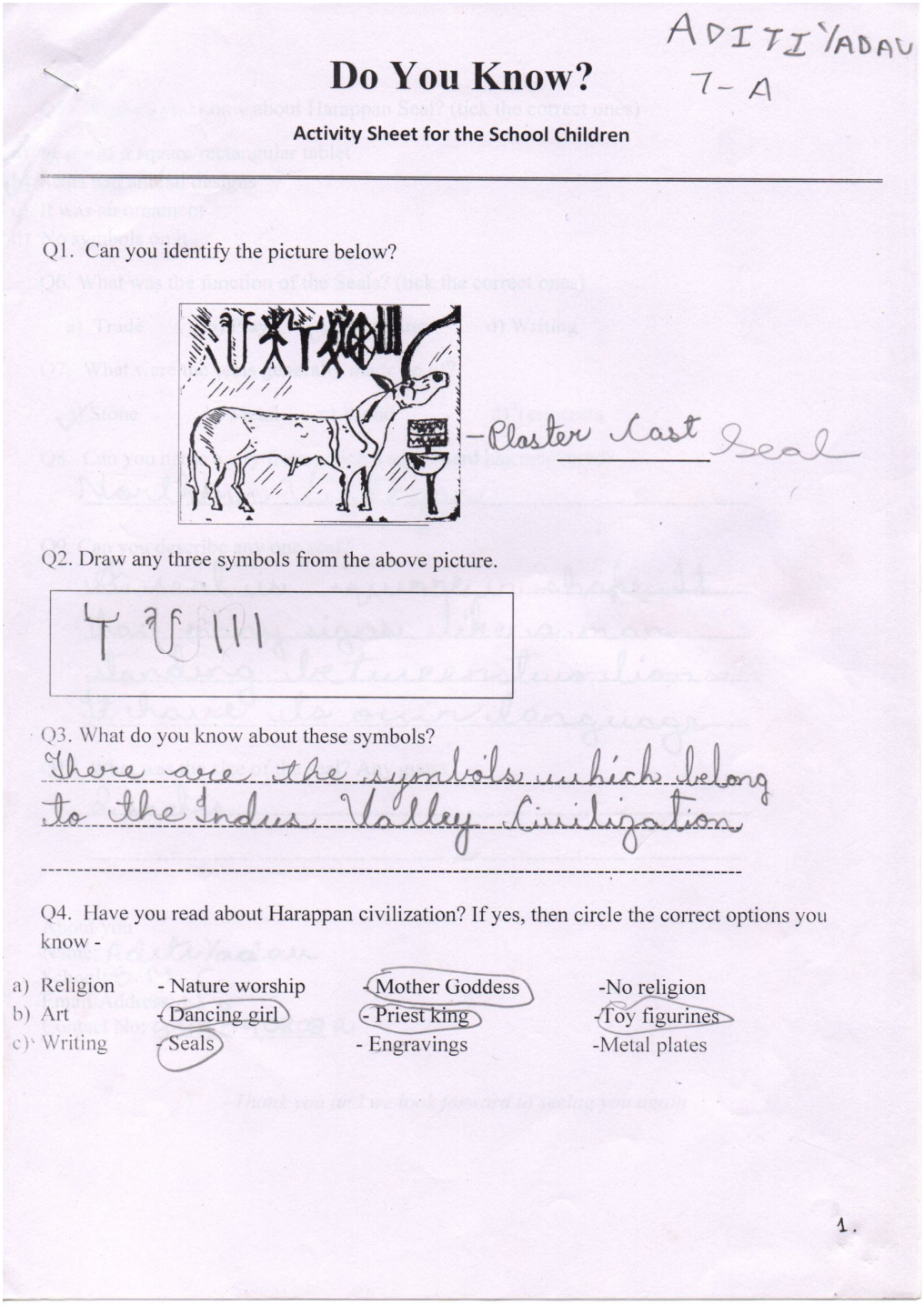



Fig.3.3.6: Participant's written response



ADITI YADAV
7-A

# Do You Know?

**Activity Sheet for the School Children**

Q1. Can you identify the picture below?

-Plaster cast Seal

Q2. Draw any three symbols from the above picture.

Q3. What do you know about these symbols?

There are the symbols which belong to the Indus Valley Civilization.

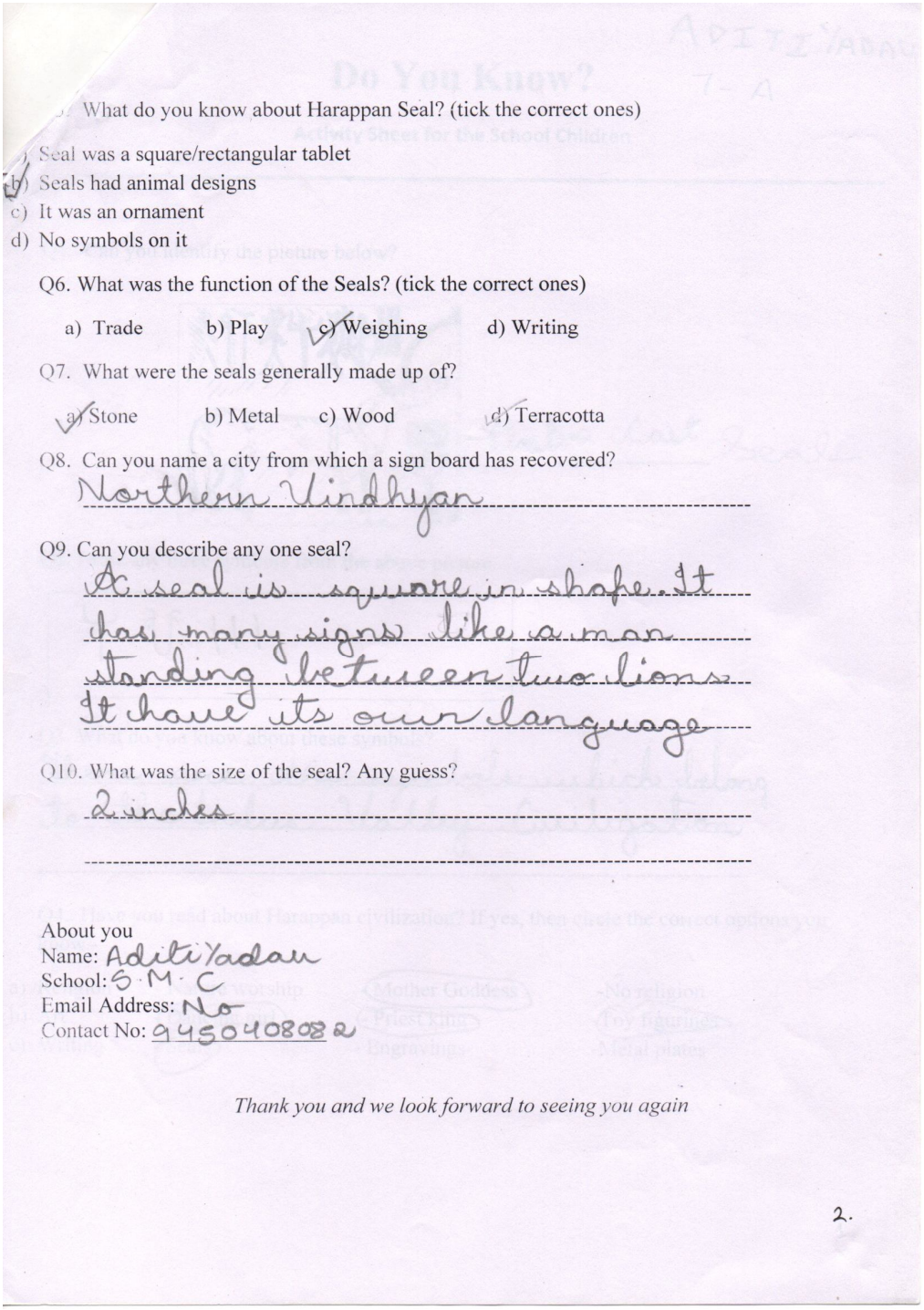
Q4. Have you read about Harappan civilization? If yes, then circle the correct options you know -

| | | | |
|---|---|---|---|
| a) Religion | - Nature worship | - Mother Goddess | -No religion |
| b) Art | - Dancing girl | - Priest king | -Toy figurines |
| c) Writing | - Seals | - Engravings | -Metal plates |

1.

Fig.3.3.7: A completed worksheet by the participant (post visit)

In Fig. 3.3.7, the worksheet was designed to get an overview about understanding developed by seeing the seals and other Harappan artefacts in display.



What do you know about Harappan Seal? (tick the correct ones)

a) Seal was a square/rectangular tablet
b) Seals had animal designs
c) It was an ornament
d) No symbols on it

Q6. What was the function of the Seals? (tick the correct ones)

a) Trade b) Play c) Weighing d) Writing

Q7. What were the seals generally made up of?

a) Stone b) Metal c) Wood d) Terracotta

Q8. Can you name a city from which a sign board has recovered?

Northern Vindhyan

Q9. Can you describe any one seal?

A seal is square in shape. It has many signs like a man standing between two lions. It have its own language

Q10. What was the size of the seal? Any guess?

2 inches

About you
Name: Aditi Yadav
School: S M C
Email Address: No
Contact No: 9450408082

*Thank you and we look forward to seeing you again*

2.

Fig.3.3.8: Page 2 of the worksheet

In Fig. 3.3.8 the participant made a probable guess about the answer no. 8, as this place name and some sites information was available in gallery but the exact answer was not there. Thus through own observation and understanding the answer was given. This reflects that participant was thoroughly looking for the answer and finally was convinced that this was a probable answer.

Participants were enthusiastic and spent quality time to put their creativity onto paper and later their oral feedback was promising. As a token of good work and memorable experience, a souvenir was distributed by honourable director of the museum, Mr. Rajesh Purohit, to all the participants. It was a replica of 'Indus seal' made in plaster cast available at museum modelling section and replica sale counter. This was an antiquity selected from the pre-historic gallery and the theme of worksheet was also the same, thus children correlated with the token of appreciation and its significance.

**Activity B:** Sculpture Gallery (31st May 2013) had some of most valuable collections of excavated material from Kausambi, Bharhut sculptures, Ekmukhi Shivlinga, sursundaries, and many architectural remains of other significant temple sites. The museum has got a vast collection of terracottas from the important archaeological sites of Kausambi, Jhusi and Bhita. They are valuable material for cultural studies of the period to which they belong. The displayed collection of beads of precious and semi-precious stones, crystal, terracotta and different metals are remarkable for its craft and beauty.

For the second activity, pertaining to gallery collection, participants were shown slides by the researcher to orient them about the sculptures of Allahabad Museum collection and few other sites along with description of various iconographic elements such as ayudhas, facial expressions, hand postures/mudras, pedestals/seats, asanas, mount/vehicle, crowns etc. Participants were advised to search those sculptures in the gallery which they had seen in the presentation apart from other observations as per the activity.

Iconography as the term signifies is the attributes of sculptures of different religions or pantheons. Whether the sculptures are of Hindu, Jain or Buddhist origin; the icons that are represented in the sculpture, aid in deriving information about the powers or qualities of the figurine. It may be a God, demi God, semi God, human, animal, composite or mythical figure and the iconography is a language to study them in depth.

Fig.3.3.9: Participants being oriented by researcher inside the gallery.

Participants were told to select any sculpture of their interest or liking when exploring the gallery, (Fig.3.3.9) and draw it partly or completely along with mentioning the significant information they noticed in the sculpture. The younger children were provided with an outline sketch (Fig. 3.3.10a, b) of the terracotta Mother Goddess figurine in sculptural gallery, and were asked to decorate as they see or like.


Fig.3.3.10a: Outline sketch

Fig. 3.3.10b: Sketch decorated by participant

The outcome of this activity was a rich collection of sketches and colorful expressions (Fig. 3.3.11, 3.3.12).

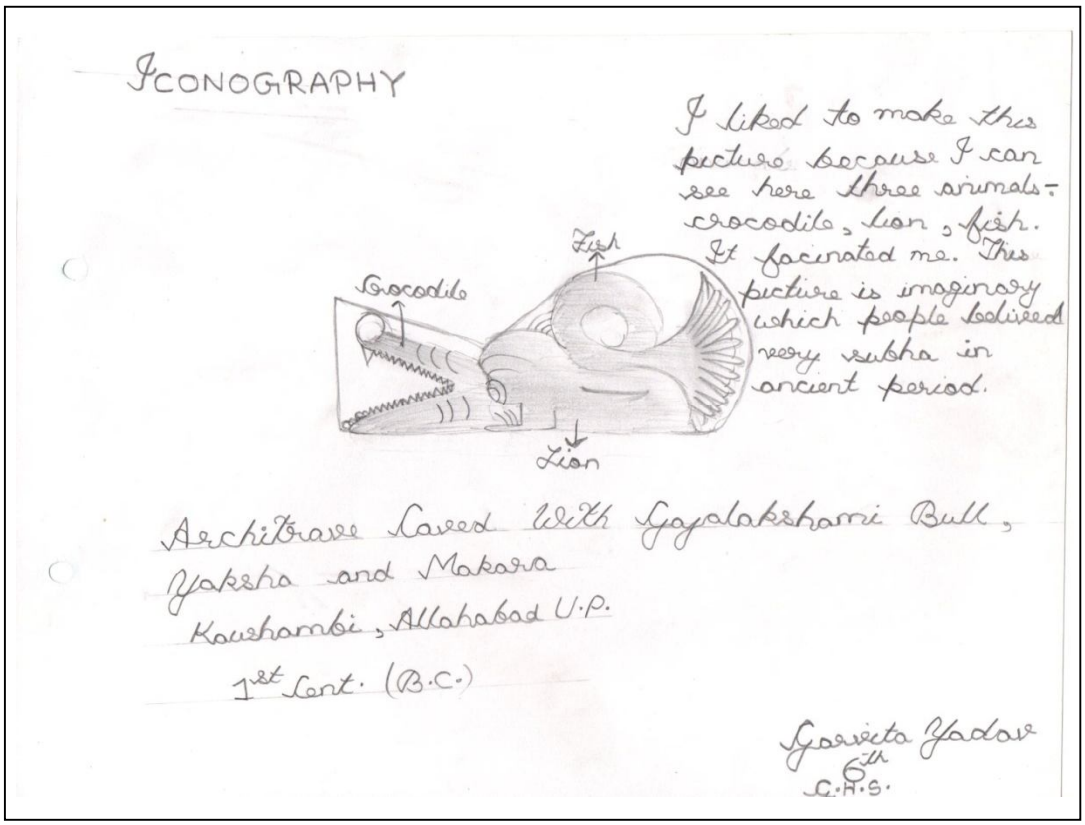



Fig.3.3.11: Observation written by participant about the sculpture.

This sculpture displayed was a new form of animal looking creature that interested a participant. Researcher described her (Garvita) that this sculpture if carefully observed might reveal to her more than one animal. In process of this interaction, she developed acumen about observing a sculpture and documenting its attributes to learn about its function, origin or association with sculptural art forms. Her simple description was an outcome of whatever she can think of as per her cognitive ability to express and share her experience. This sculpture was an amalgamation of more than one animal, and was a mythical representation, fascinated her and so was chosen as a subject of description.

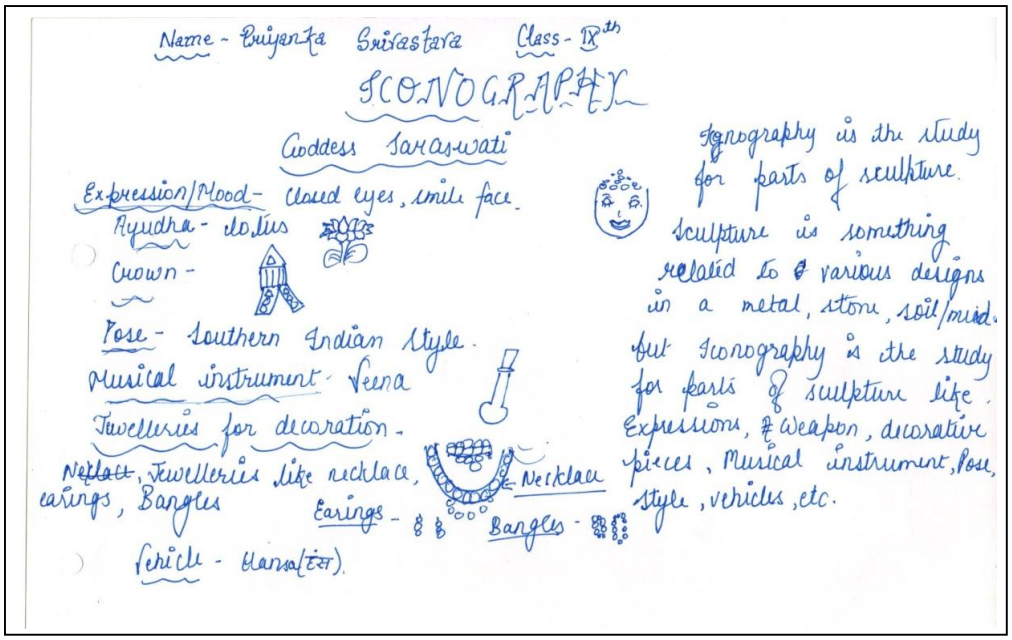



Fig.3.3.12: Iconography – view of a participant as written expression

Through these interactions participants were encouraged to ask questions, explore other collection within the gallery, and select what they like the most. They were making choices to draw those sculptures that seemed unique like the figure 3.3.11. It was observed that, all the participants were choosing varied objects and not sticking to a particular exhibit or an easier shape. They made the appropriate choice for their sketch after the complete visit of the gallery. The sheet in figure 3.3.12, describes how the participant summarised the viewed iconographic features such as, expressions on face, crown, jewellery and designs that were visible, in the sculptures of gallery and finally concluded it as a written observation feedback. Apart from the basic icons, the participant was keen to share the learnt aspects of whole activity i.e. what is iconography and how it correlates in studying a sculpture.

**Activity C**: Paintings Gallery (2nd June 2013) display collection of miniature paintings, namely, Ragmala miniature paintings, Mughal miniatures, Pahari miniatures and Tanjore. For this gallery activity, participants were asked to notice variety of paintings and the details of flora or fauna, dressing styles, colour schemes, themes and subject matter, or even compare two set of schools. They were asked to give a feedback, written or in oral form.

This gallery made participants think about the lifestyle of people, their art techniques, painting styles and various elements of art and culture of past era that are not surviving any more. Though in some or the other form they are seen but the sanctity has been lost due to the losing interest of new generation who lack the patience or interest which earlier artists used to have.

Conducting such an activity (Fig. 3.3.13) through the museum collection observation, a sense of interest, a spark of knowledge was generated among the participants about this dying art which is a beautiful tangible cultural heritage of our country.

Fig.3.3.13 Researcher providing information to participants in the paintings gallery

The responses from the participants were interesting and varied in expression. Some of them made drawings (Fig.3.3.14) and many wrote comparisons between two schools of Art. Fig. 3.3.14 shows the variety of paintings observed in the gallery. The sketch reflects that the participant was impressed by the depiction of this theme in painting and the drawing was made to emphasize on the same. The presence of bilingual labels is also reflected as recorded by the participant in the same aspect for describing the painting.

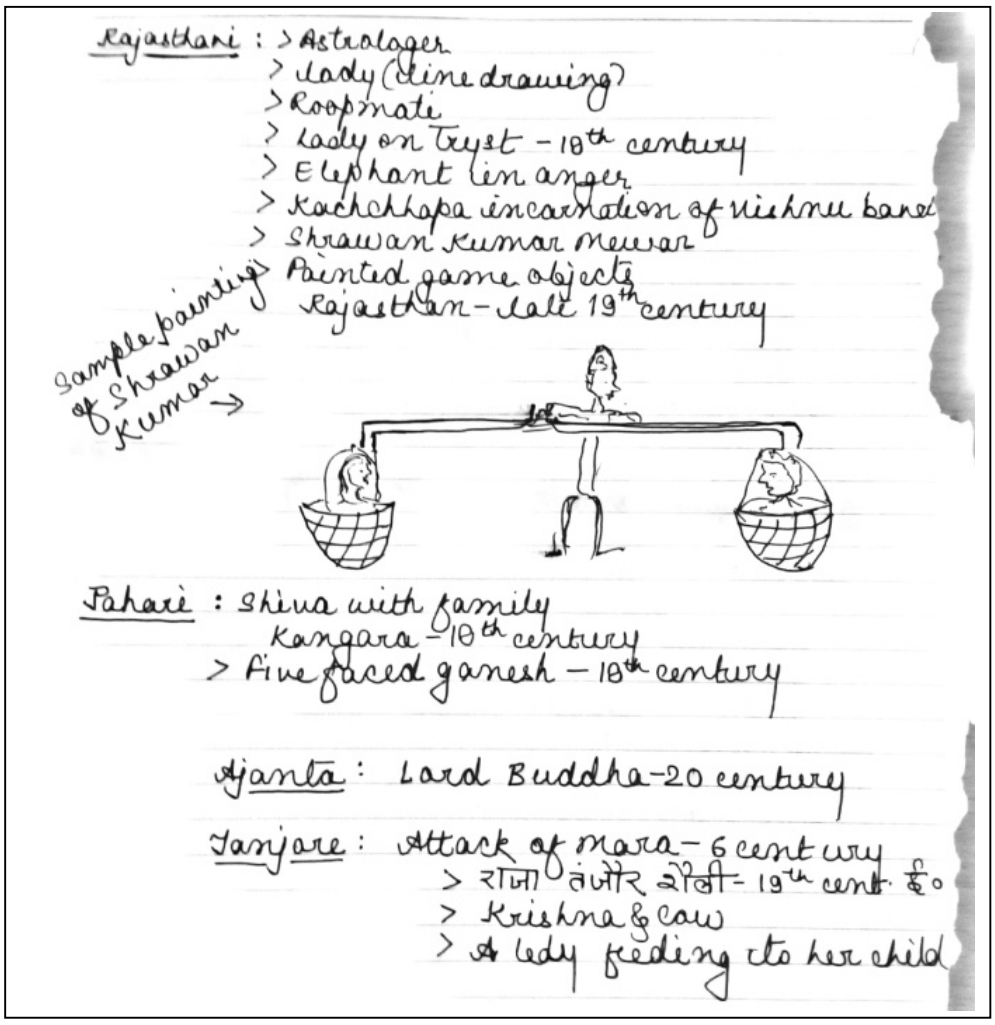



Fig.3.3.14 Written feedback by one of the participant

Some wrote the experience of visiting the Miniature paintings gallery and description of paintings. They were curious to know why earlier artists used particular shades of colour, how they drew so minutely, what was idea behind selecting a theme, how the details were so finely made that even get highlighted although size of painting is small. So this interaction within the gallery made children think out of the box and know more about their own heritage evidences.

The summer program museum activities continued for a month and hands on activities were main highlight of program. Participants were having fun as they learn, and were gaining knowledge which was not part of any book, rather part of heritage and society. They were given those experiences to cherish and spread among their fellow mates. This initiative was a form of

heritage ride into own culture and understanding of past through the help of a museum. Thanks to the devoted and hardworking personnel of the Allahabad museum that gave shape to this program into a fun filled yet educative initiative. The Allahabad Museum case study that was focusing on Archaeological learning using galleries as teaching aids, proved out to be a promising feedback and result. The outcomes (Fig. 3.3.15) collected after these activities speak up the effectiveness of learning activity and the artistic and related aspects the participants learned by doing.

The compilation of sketches reflects the observation and understanding developed about the collection and significance of sources that are primary data to extract that information. The participants used cognitive skills and used memory and observation as tools to give shape to their thought processes. These galleries were new experiences for many of them but they gathered information that was rich and descriptive.

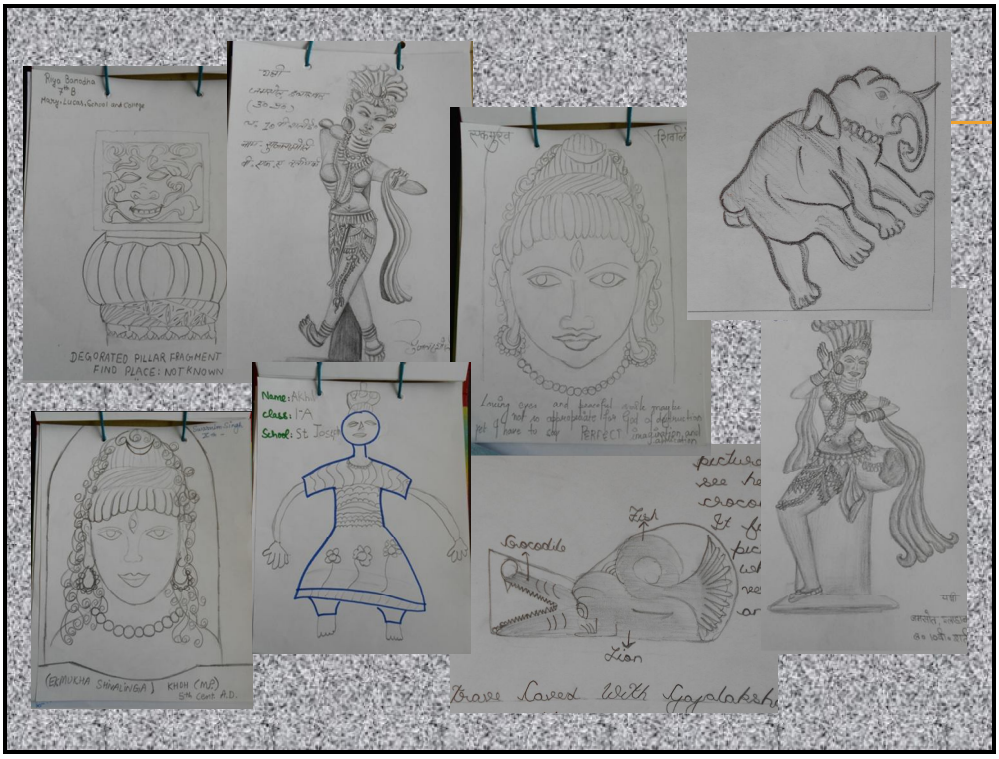



Fig.3.3.15. Sketches created by participants

## 3.4 CASE STUDY 3

### NATIONAL SCIENCE CENTRE, NEW DELHI

National Science centre is a constituent unit of the National Council of Science Museums, Ministry of Culture, Government of India. It is one of the largest science centres in India and is the zonal headquarters of science centres under NCSM in the north zone.

As part of educational and outreach programs, the centre conducts- science drama, popular lectures, quiz shows, debates, science fair etc. at city, state, national level and gives opportunities to make children (especially schools) to participate and visit an informal institution of learning. These programs conducted in collaboration with various schools and organizations, within & outside Delhi, provide an insight about the dynamic attitude and emerging scientific temper of school children. The centre has specially designed galleries that have portions of heritage education. A notable aspect, Museobus is part of centre's educational strategy and one of its activities was recorded for this research. Other available resources such as the library which is rich in variety of books on science & its streams, technology & engineering, computer studies, presentation & exhibition designing, art and heritage etc. and other e-resources, audio-visual sources and various publications was explored. Library has collection of publications on various museums and archaeological studies in textual and digital formats.

Study was conducted to explore the educational endeavour provided by National Science Centre, Delhi through its available resources and gallery exhibitions. As the research is aimed to showcase the significance of museum objects and exhibits for the purpose of educating, about archaeology and heritage, so this active institution provides a myriad variety of programs that enable achieving the aforesaid objective.

For children those who have difficulty in reading, the presentation of objects enable learning the concepts that may not be easily understood through the textual knowledge or written data. Focusing on the same purpose, National Science Centre, Delhi has remarkably developed a unique way of presenting

concepts, which can be experienced through various senses. Understanding is enhanced either by label information or through sense of touch, vision, hearing, etc. The entire area of centre has in total nine galleries to explore, which continue in a sequence, taking the visitor (connecting) move from one gallery to another. Galleries have various hands-on activities of different types that provide a chance of active participation for most of the visitors and immersive experiences.

The centre also organizes various activities and events that facilitate creating interest in the field of science and technology among the youth. In recent years they have developed new galleries and added more digital aspect to the concept of teaching.

The Centre offers **Mobile Exhibition Van** (on request) for far off school students so as to connect them to the information related to science & technology. The Van has been designed to offer the zest of knowledge which different classes of school students can understand, and which will motivate them to visit Science centre. One such visit was observed at Kakrola in Delhi during the course of study. A Science Fair at Government Sarvodaya Kanya Vidyalaya at Kakrola, in Delhi was organized (28/11/2013). National Science Centre Mobile Exhibition Van (Fig.3.4.1, 3.4.2) was sent for benefit of school children there. Based on science themes, the models made by children along with the other “Natak” performances were observed.


Fig.3.4.1 Science awareness programme

Fig.3.4.2 Mobile exhibition van at Kakrola

The main galleries at National Science Centre are showcasing themes of: Emerging technologies; Water: The elixir of life; Information revolution;

Digital information; Fun science; Heritage; Prehistoric life; Human biology; Human life.

A significant part of case study was based on conducting survey & related worksheet filling work and exhibition related feedback of **Heritage Gallery** at the Centre. The gallery "*Our Science and Technology Heritage*" is expressly designed to showcase the rich heritage of Indian Science and Technological contributions.

For the purpose of research, the Heritage Gallery was chosen as it displays India's ancient past in the most elaborate and indepth way. Going through the gallery one experiences the journey of Indian heritage that takes the visitor through amazing discoveries & breathtaking innovations. This journey comes alive as one views these discoveries in various pictorial or model forms, and learns to appreciate the enigmatic facts. Following the footprints of ancient scholars and their vital contributions, this informative gallery has been developed to provide unique glimpses of Indian heritage & scientific growth. This amalgamation of display with selected hands-on exhibits act as perfect means of learning the incredible aspects of Indian heritage with the help of science & technology.

The gallery also has audio-visual aids that enable the visitor to go through the information he/she is interested to embark upon. These audio visual aids begin as soon as one enters the gallery so that visitors are able to make more sense of the display they are seeing. Touch screens are aptly used for bilingual (english & hindi) information display, which enable the visitor to choose as they like. The very first panel on entering the gallery and touch screen is describing archaeological objects and sites. Emphasizing on the diorama and exhibits presented in a highly refined manner, visitors are able to make out the historic and archaeological facts in an efficient communicative mode.


Fig.3.4.3 Replicas on display which showcases Terracotta artefacts of Harappan period

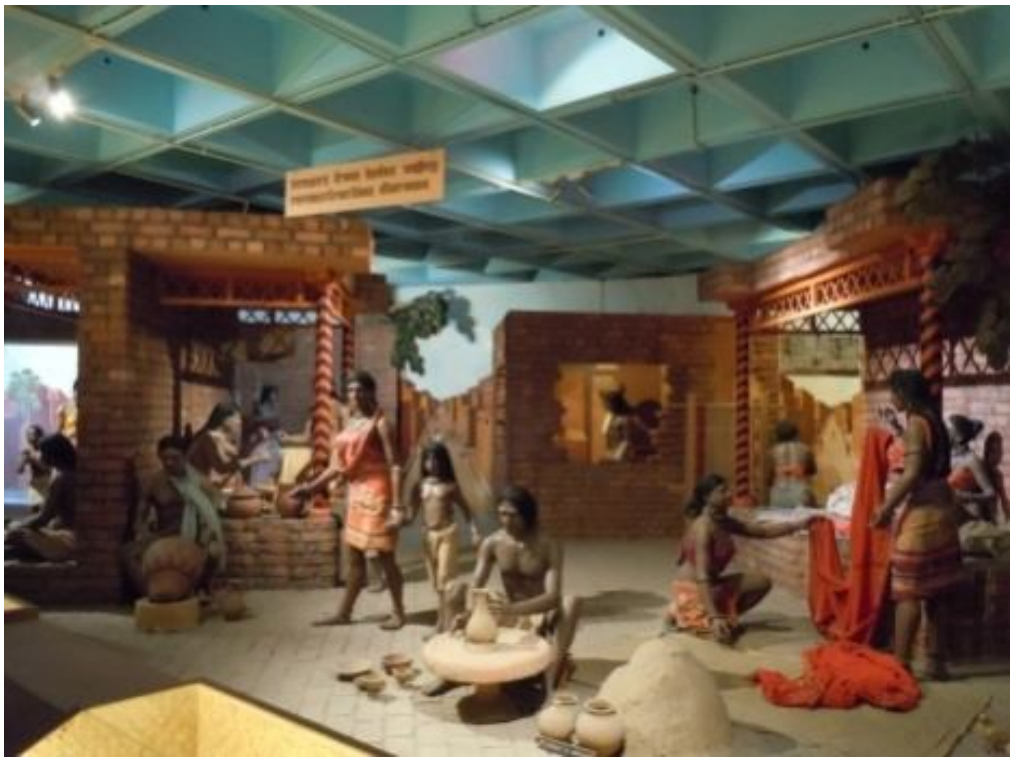


Fig.3.4.4 Diorama of life during Harappan times

This section (Fig. 3.4.3, 3.4.4) showing *Technological traditions of Harappa* was observed as major part of the study as it is concentrating on archaeological display.

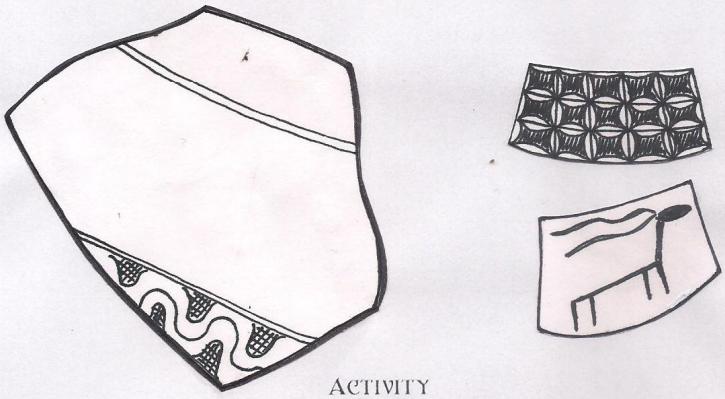
A worksheet (Fig. 3.4.5) comprising of 21 pages, with information and activities, covering all major displays in this gallery was prepared by researcher in order to get a short overview from the visitors especially school children, the information on archaeology and heritage that communicated through labels and displays. The exhaustive booklet was organized, designed and arranged in such a way that single sheets could be used individually for data accumulation. Each child was given single page dealing with different aspects and these were used for data collection. In this manner majority of exhibits were covered and written feedback from the children was generated for study.

The Heritage gallery exhibition is splendidly rich with diorama representations, replicas, reconstructions, informative labels, touch screen multimedia aids, and other audio-visual aids, along with some artefacts, maps and interesting models. As one explores these amazing artefacts, the journey becomes more interesting. Every ancient era of this country is splendidly rich in applications of science and technology. The evidences are present in the fields like astronomy, archaeology, mathematics, surgery, medicines, metallurgy etc. These testimonies made India proud & eternal in the world heritage. Heritage Gallery is like a 'Time Capsule' of these achievements. An educational and informational worksheet for the young visitors to this gallery was developed based on inputs from the display, labels and to link with the school curriculum.

DO YOU KNOW THAT A "POTSHERD" IS A BROKEN PIECE OF POT.? WHEN ARCHAEOLOGISTS SCIENTIFICALLY DIG THE SITES DURING EXCAVATION, THEY OFTEN FIND ARTIFACTS AND GET BROKEN POTS OR POTSHERDS BURIED DEEP BENEATH THE SURFACE OF EARTH.

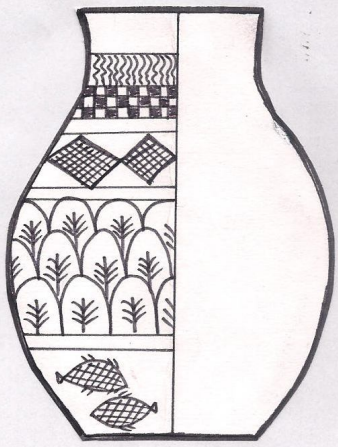
ACTIVITY

HERE IS A POTSHERD DRAWN FOR YOU. COMPLETE THE PICTURE BY DRAWING ANY PATTERN IN IT THAT YOU SEE IN THE GALLERY DISPLAY.



ACTIVITY

LOOKING AT DESIGNS IN GALLERY, COMPLETE THE PICTURE OF JAR BELOW.



*Harappan pottery had variety of animal, plant or geometric motifs. A few designs are drawn for you to have a look.*

Fig.3.4.5 Worksheet on pottery

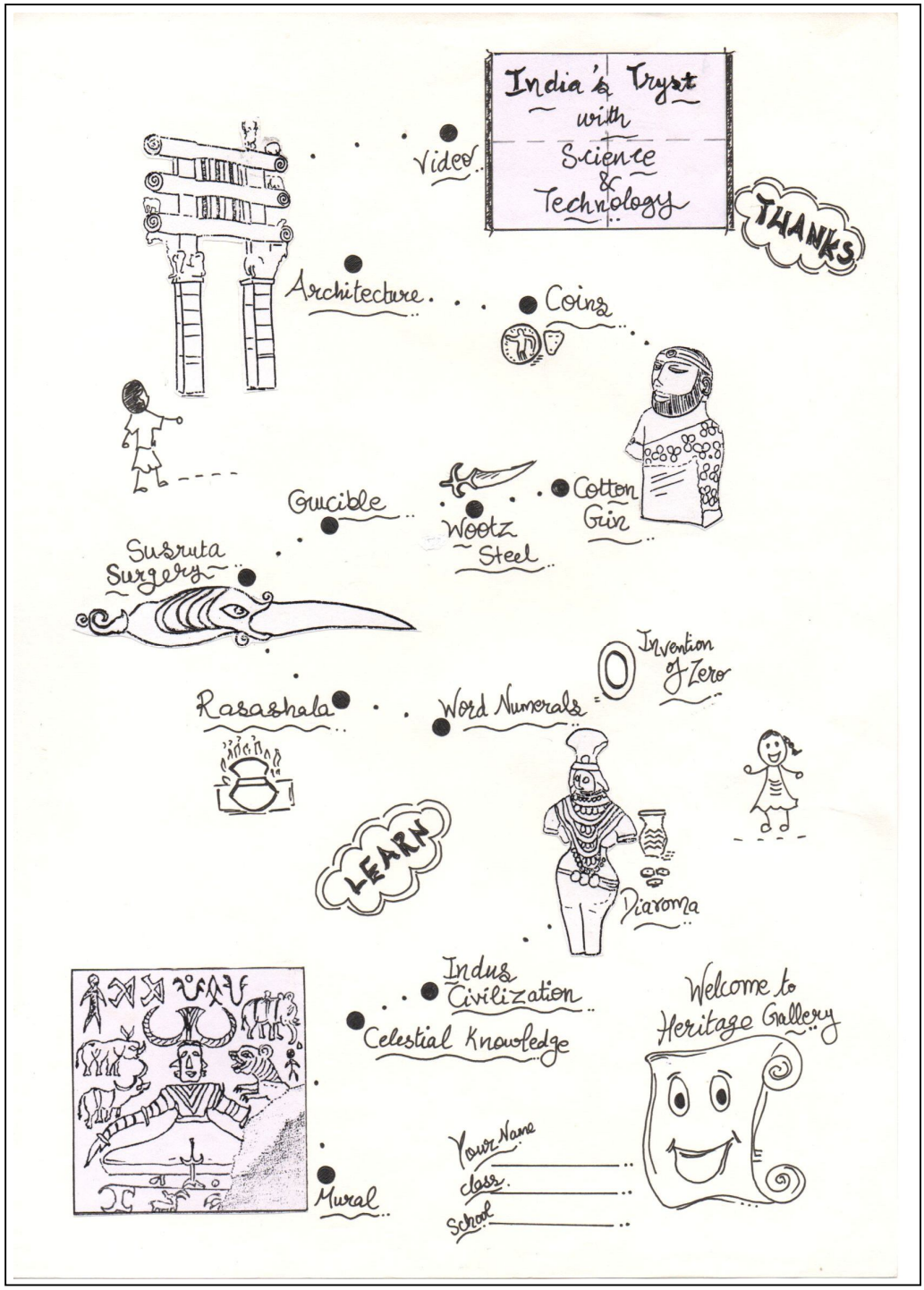



Fig.3.4.6 Front page with highlights of Heritage Gallery

The worksheet was designed in such a manner that with brief introduction of gallery and highlights of exhibits, a simple plan (Fig.3.4.6) was also put in that reflected the diverse nature of displays. First page of worksheet showing gallery plan reflecting the displays of gallery and highlighted portions for observation and activity purpose.

As described in introduction panels in gallery, the Indus Valley Civilization featured urban planning, a rich layer of standardized material culture, the world's earliest writing system, carefully planned residential complexes with wastewater systems, special shapes and decorative styles of ceramic vessels and an array of products from sophisticated craft industries.

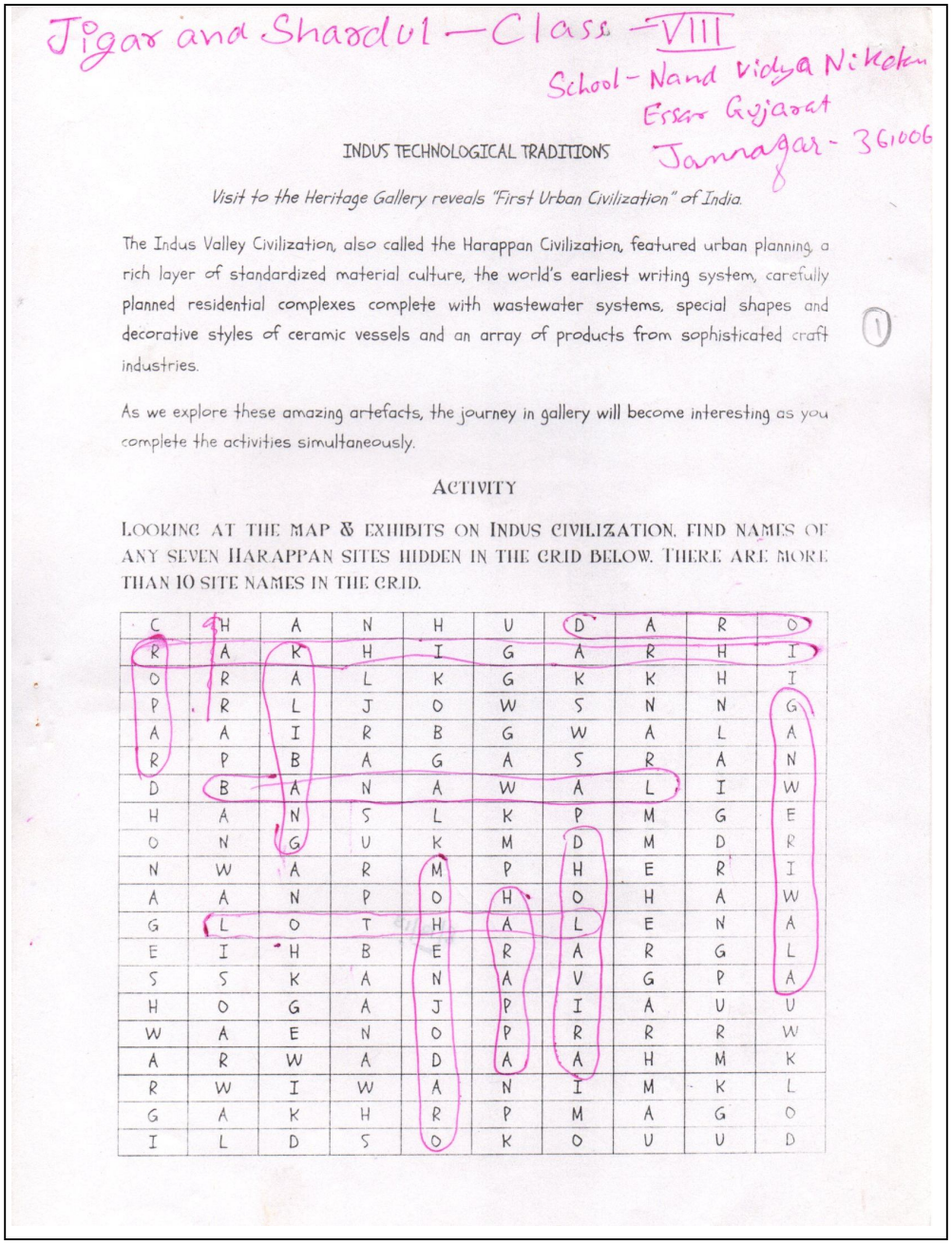
Researcher acted as a resource person and oriented children about the significance of archaeological display and the purpose of this section being the first in Heritage gallery. The details of technological traditions are described all over in this section along with replicas in showcase displays. The purpose of study was briefed to students visiting the gallery and the written completed form of sheets was compiled for analyzing the clarity available in display and information observed by children.

Initial pages of worksheet emphasized on the technological traditions described in gallery. The children were given brief overview about how to search for the information asked in the worksheet. Thereafter a brief interaction enabled the researcher to know about the interests of the person and purpose of their visit.

Students visiting gallery were selected to do a page of worksheet. It was observed that those visitors that had read (in school) some or the other aspects of heritage displayed in gallery were more enthusiastic to do and complete the worksheets (Fig.3.4.7, 3.4.8). Children above 10 years were selected for the activity.

Fig.3.4.7 Children undertaking worksheet activity

Fig. 3.4.8 Display objects being observed for worksheet completion



Jigar and Shardul — Class — VIII
School - Nand Vidya Niketan
Essar Gujarat
Jamnagar - 361006

INDUS TECHNOLOGICAL TRADITIONS

*Visit to the Heritage Gallery reveals "First Urban Civilization" of India.*

The Indus Valley Civilization, also called the Harappan Civilization, featured urban planning, a rich layer of standardized material culture, the world's earliest writing system, carefully planned residential complexes complete with wastewater systems, special shapes and decorative styles of ceramic vessels and an array of products from sophisticated craft industries.

As we explore these amazing artefacts, the journey in gallery will become interesting as you complete the activities simultaneously.

ACTIVITY

LOOKING AT THE MAP & EXHIBITS ON INDUS CIVILIZATION, FIND NAMES OF ANY SEVEN HARAPPAN SITES HIDDEN IN THE GRID BELOW. THERE ARE MORE THAN 10 SITE NAMES IN THE GRID.

| C | H | A | N | H | U | D | A | R | O |
|---|---|---|---|---|---|---|---|---|---|
| R | A | K | H | I | G | A | R | H | I |
| O | R | A | L | K | G | K | K | H | I |
| P | R | L | J | O | W | S | N | N | G |
| A | A | I | R | B | G | W | A | L | A |
| R | P | B | A | G | A | S | R | A | N |
| D | B | A | N | A | W | A | L | I | W |
| H | A | N | S | L | K | P | M | G | E |
| O | N | G | U | K | M | D | M | D | R |
| N | W | A | R | M | P | H | E | R | I |
| A | A | N | P | O | H | O | H | A | W |
| G | L | O | T | H | A | L | E | N | A |
| E | I | H | B | E | R | A | R | G | L |
| S | S | K | A | N | A | V | G | P | A |
| H | O | G | A | J | P | I | A | U | U |
| W | A | E | N | O | P | R | R | R | W |
| A | R | W | A | D | A | A | H | M | K |
| R | W | I | W | A | N | I | M | K | L |
| G | A | K | H | R | P | M | A | G | O |
| I | L | D | S | O | K | O | U | U | D |

Fig.3.4.9 Completed worksheet on Harappan sites

To create an understanding related to the spread of Harappan civilization and its key sites, the introduction worksheet (Fig. 3.4.9) was designed. The motive was to make children aware of the features of an urban civilization that were reflected in various sections of Heritage gallery.

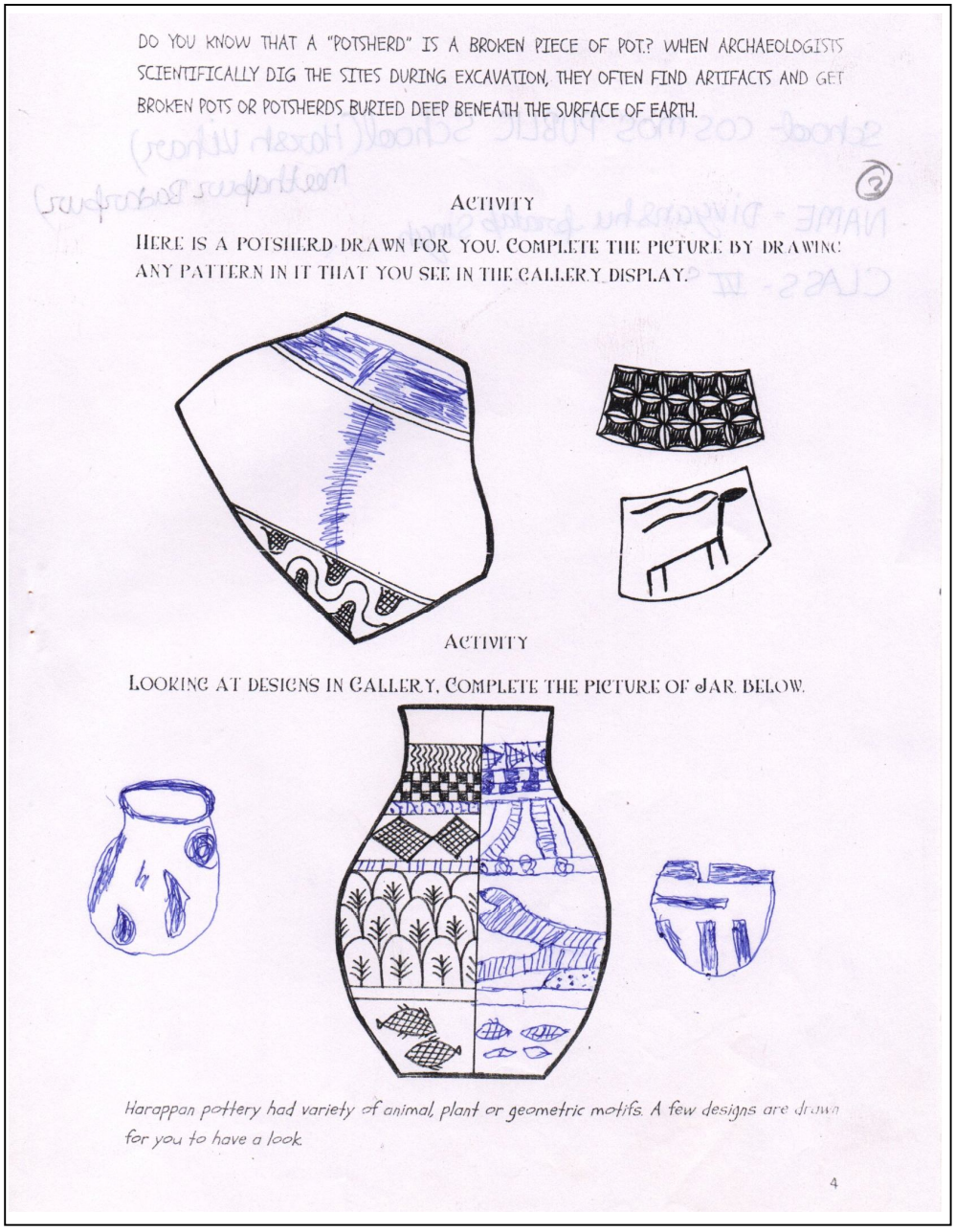



Fig.3.4.10 Completed worksheet on pottery designs

Harappan pottery is prolific in decorative motifs be it in form of flora, fauna or humanlike designs. To give an understanding about the myriad aspects of pottery designs, the worksheet (Fig. 3.4.10) was created that motivated respondents to use imagination and draw some patterns of their own. The aim was to make children observe and learn the patterns.

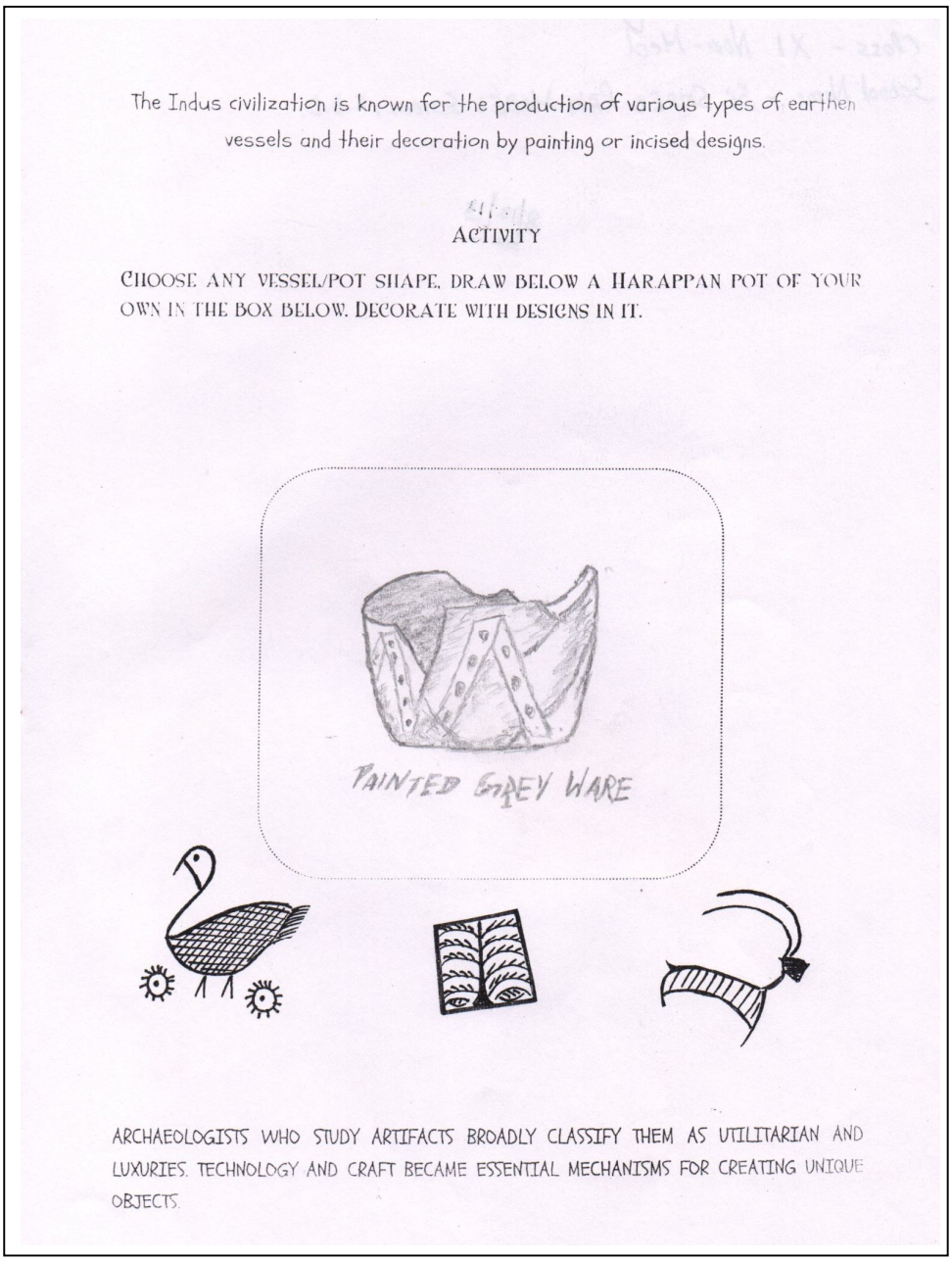
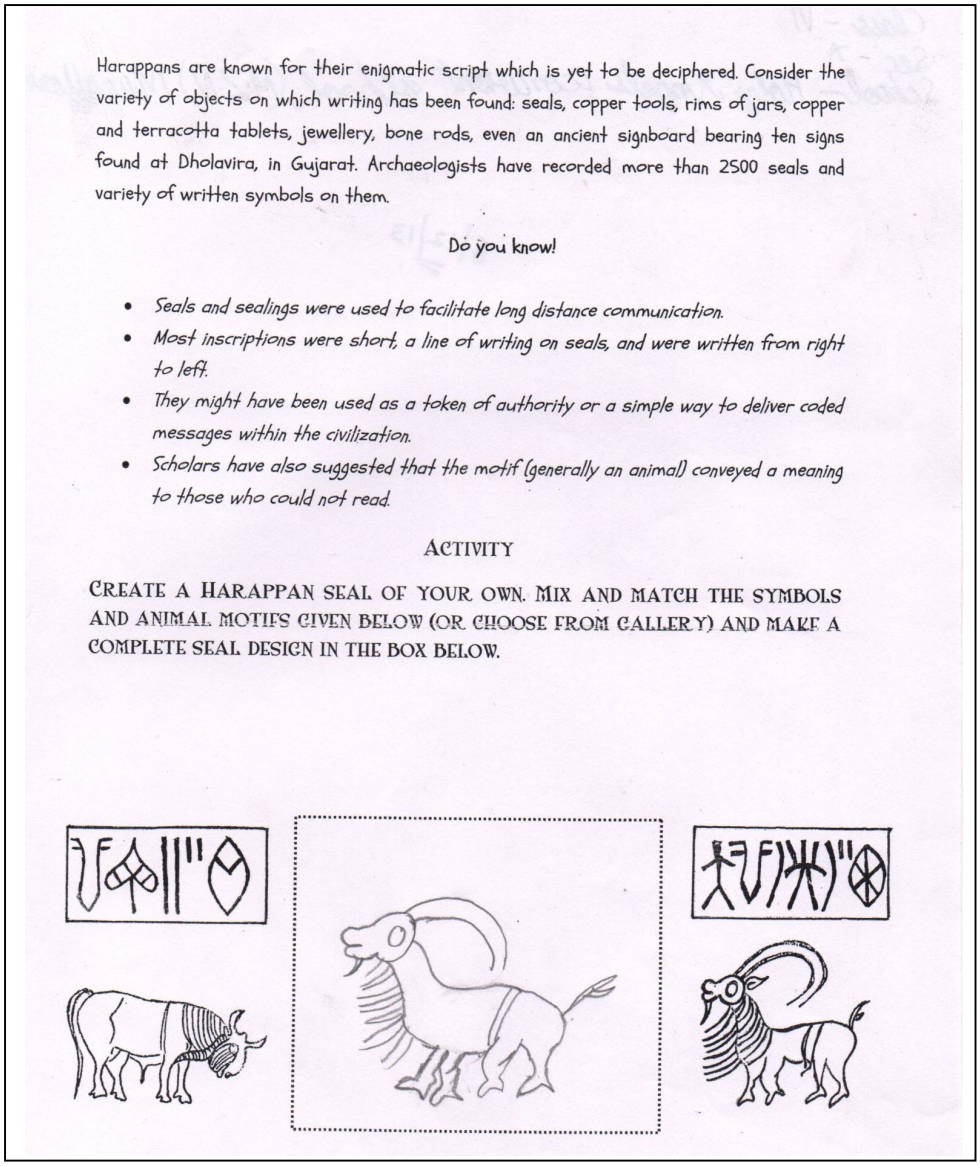



Fig.3.4.11 Completed worksheet on pottery

Pottery has its utilitarian aspect that is reflected in its shape. Harappans made pots and vessels of diverse shapes and sizes that indicated towards the surplus of food production and their storage, cooking or ritualistic patterns. The worksheet (Fig. 3.4.11) was targeted to make children think of possible shapes and their uses that was revealed by artefacts recovered.



Harappans are known for their enigmatic script which is yet to be deciphered. Consider the variety of objects on which writing has been found: seals, copper tools, rims of jars, copper and terracotta tablets, jewellery, bone rods, even an ancient signboard bearing ten signs found at Dholavira, in Gujarat. Archaeologists have recorded more than 2500 seals and variety of written symbols on them.

Do you know!

- *Seals and sealings were used to facilitate long distance communication.*
- *Most inscriptions were short, a line of writing on seals, and were written from right to left.*
- *They might have been used as a token of authority or a simple way to deliver coded messages within the civilization.*
- *Scholars have also suggested that the motif (generally an animal) conveyed a meaning to those who could not read.*

ACTIVITY

CREATE A HARAPPAN SEAL OF YOUR OWN. MIX AND MATCH THE SYMBOLS AND ANIMAL MOTIFS GIVEN BELOW (OR CHOOSE FROM GALLERY) AND MAKE A COMPLETE SEAL DESIGN IN THE BOX BELOW.

Fig.3.4.12 Completed worksheet on Harappan seals

Harappan seals are the earliest evidence of possible coded language that came to light about the ancient Civilization. Seals are undeciphered but enigmatic and most significant artefact to explore the writing, trade or art of ancient society. Fig. 3.4.12 describes seals as significant indicator of different social aspects that were to be learnt and finally expressed by children as per their understanding.

The Indian invention of ***Zero*** has revolutionized the very practice of arithmetic the world over. India gave to the world an ingenious method of expressing all numbers by means of symbols, each symbol representing a value of position as well as an absolute value.

Going ahead there are information panels on ancient arithmetic, measures of length, weight and time. Observe them to know some interesting ideas.

**Activity:** You will be able to see a display panel on *Word Numerals*. Write correct words in the table below that is similar to the display panel in front of you.

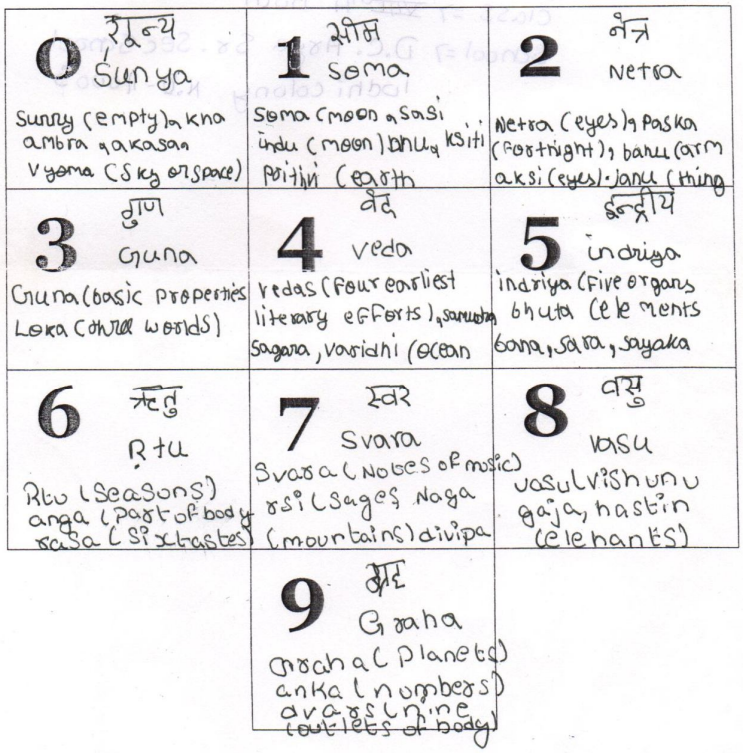
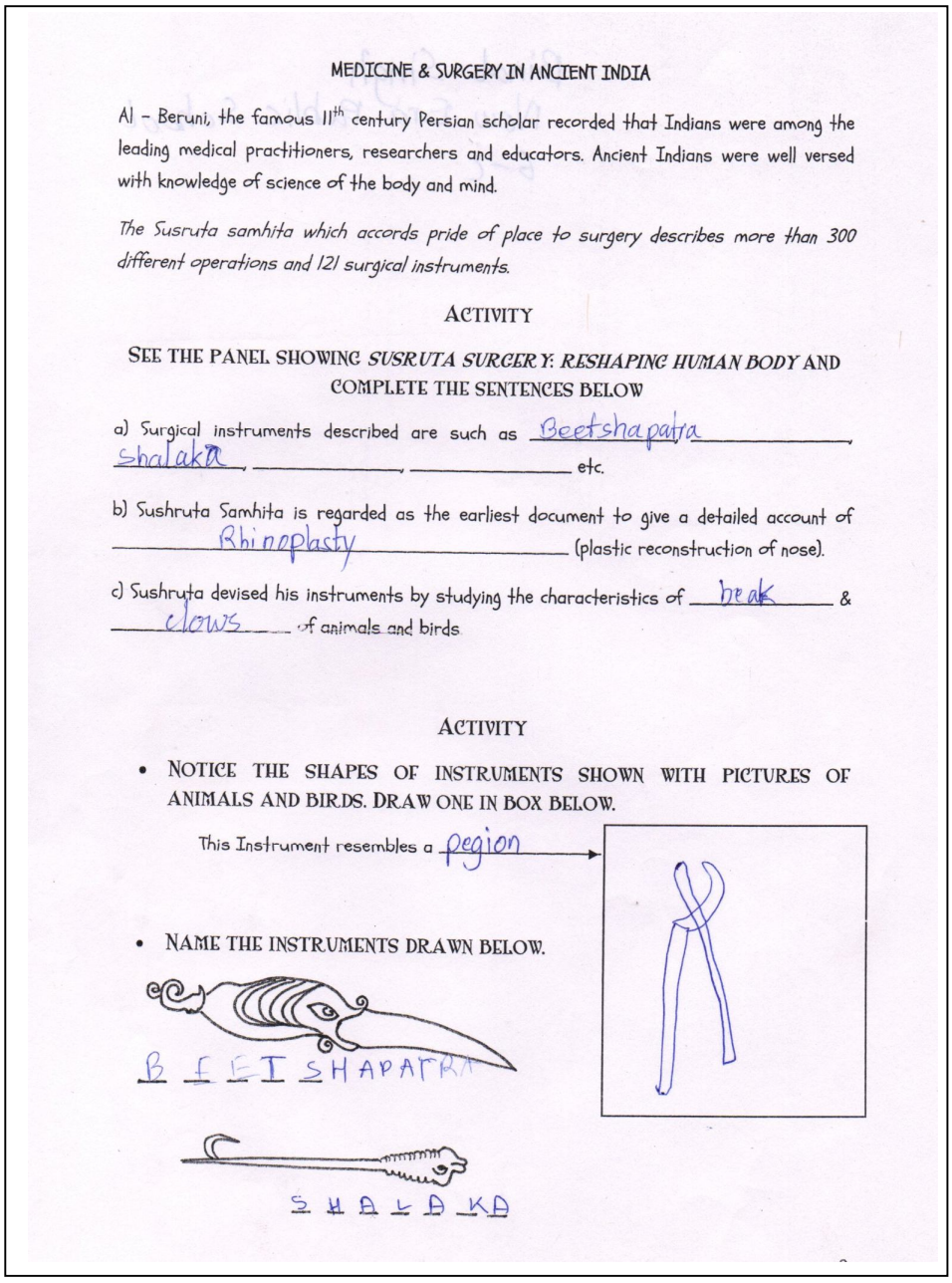



Fig.3.4.13 Completed worksheet on numbers

The ancient arithmetic of numerals, measurement and time are evidences of genius Indians who contributed this knowledge in scientific intellect worldwide. Planets are often associated with system of numbers in Indian context and worksheet (Fig. 3.4.13) that emphasised on the significance of this knowledge was part of activity booklet. The respondent extensively observed all the details and wrote in the worksheet that shows the information was digestible and it was easy to correlate with the display.



MEDICINE & SURGERY IN ANCIENT INDIA

Al – Beruni, the famous 11th century Persian scholar recorded that Indians were among the leading medical practitioners, researchers and educators. Ancient Indians were well versed with knowledge of science of the body and mind.

*The Susruta samhita which accords pride of place to surgery describes more than 300 different operations and 121 surgical instruments.*

ACTIVITY

SEE THE PANEL SHOWING *SUSRUTA SURGERY: RESHAPING HUMAN BODY* AND COMPLETE THE SENTENCES BELOW

a) Surgical instruments described are such as Beetshapatra, Shalaka, _____, _____ etc.

b) Sushruta Samhita is regarded as the earliest document to give a detailed account of Rhinoplasty (plastic reconstruction of nose).

c) Sushruta devised his instruments by studying the characteristics of beak & claws of animals and birds.

ACTIVITY

- NOTICE THE SHAPES OF INSTRUMENTS SHOWN WITH PICTURES OF ANIMALS AND BIRDS. DRAW ONE IN BOX BELOW.

This Instrument resembles a pegion →

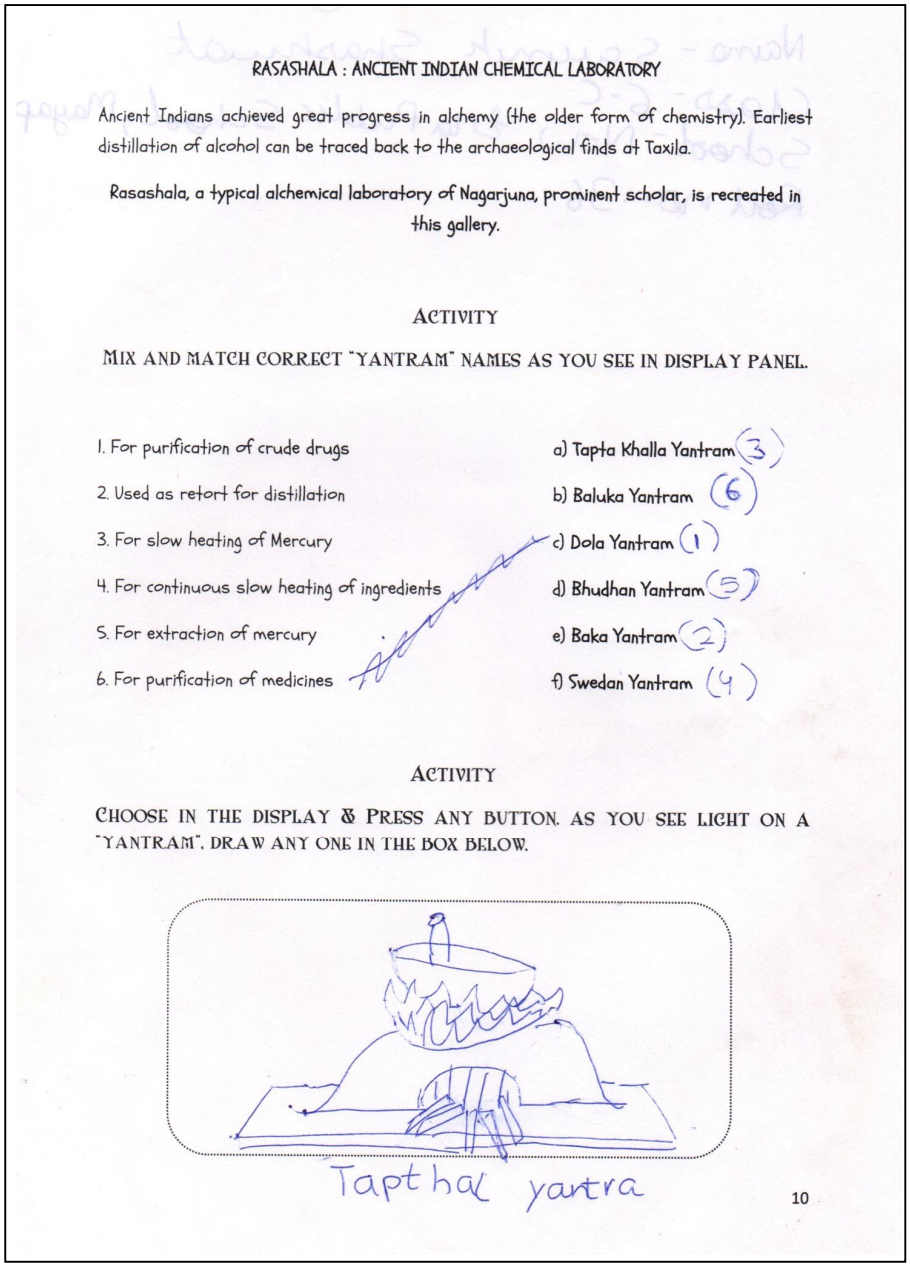
- NAME THE INSTRUMENTS DRAWN BELOW.

BEETSHAPATRA

SHALAKA

Fig.3.4.14 Completed worksheet on ancient medicine and surgery

There was a panel showing replicas of ancient surgery tools along with a diorama showing a surgery being done. This was recorded in worksheet (Fig.3.4.14) as a point of reference to create a sense of pride in this indigenous aspect of advance Indian medicine and surgical practices. The respondent expressed this understanding in form of answers and sketch.



RASASHALA : ANCIENT INDIAN CHEMICAL LABORATORY

Ancient Indians achieved great progress in alchemy (the older form of chemistry). Earliest distillation of alcohol can be traced back to the archaeological finds at Taxila.

Rasashala, a typical alchemical laboratory of Nagarjuna, prominent scholar, is recreated in this gallery.

ACTIVITY

MIX AND MATCH CORRECT "YANTRAM" NAMES AS YOU SEE IN DISPLAY PANEL.

| | |
|---|---|
| 1. For purification of crude drugs | a) Tapta Khalla Yantram (3) |
| 2. Used as retort for distillation | b) Baluka Yantram (6) |
| 3. For slow heating of Mercury | c) Dola Yantram (1) |
| 4. For continuous slow heating of ingredients | d) Bhudhan Yantram (5) |
| 5. For extraction of mercury | e) Baka Yantram (2) |
| 6. For purification of medicines | f) Swedan Yantram (4) |

ACTIVITY

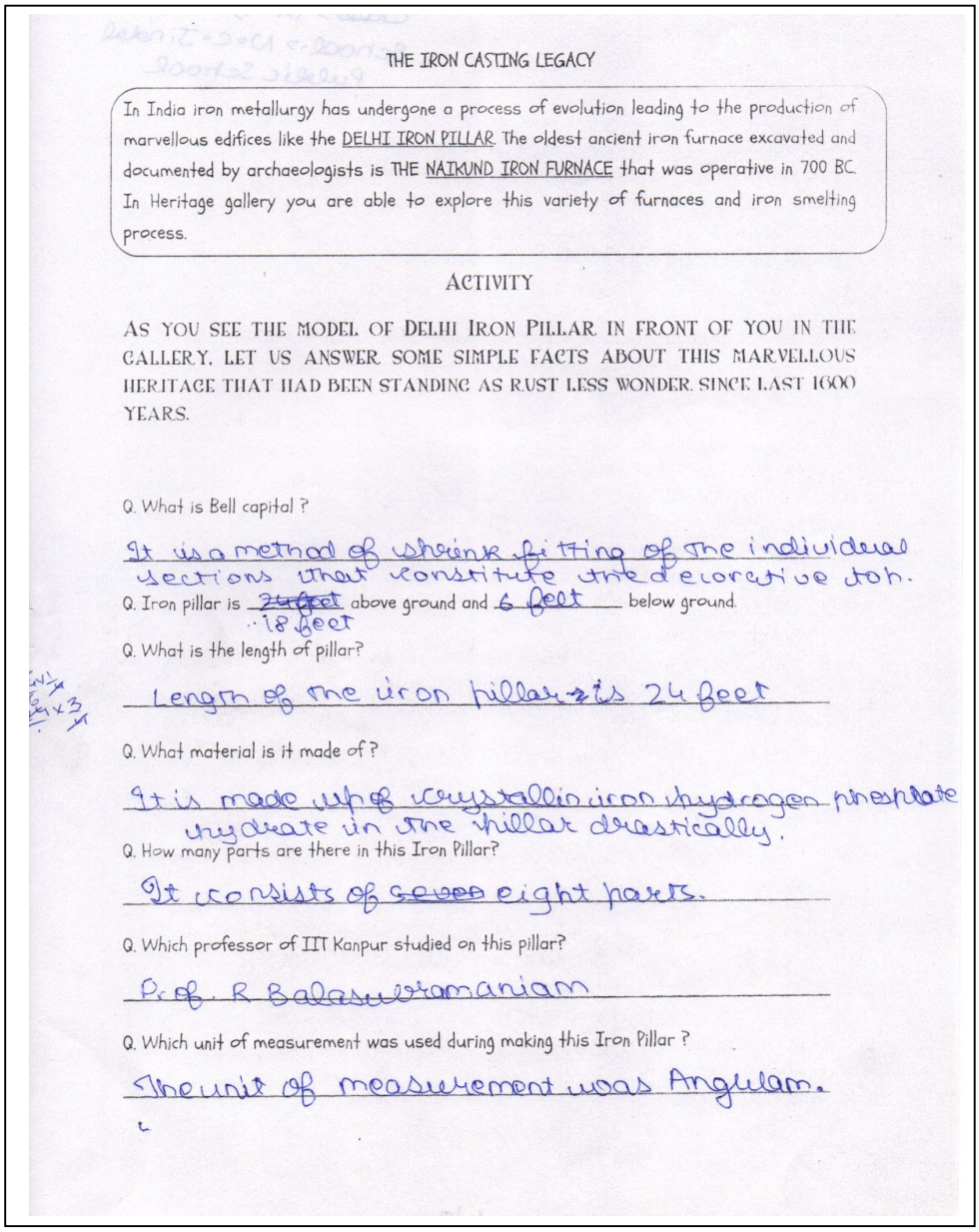
CHOOSE IN THE DISPLAY & PRESS ANY BUTTON. AS YOU SEE LIGHT ON A "YANTRAM", DRAW ANY ONE IN THE BOX BELOW.

Tapthal yantra

10

Fig.3.4.15 Completed worksheet on ancient chemical laboratory

The ancient science of chemical laboratories was popular among Indians and evidences were found in archaeological site of Taxila. The selected panel was reflecting this information. To make the respondent understand archaeological findings in relation to science, worksheet (Fig.3.4.15) was designed. The response shows analysing of information from display.



THE IRON CASTING LEGACY

In India iron metallurgy has undergone a process of evolution leading to the production of marvellous edifices like the DELHI IRON PILLAR. The oldest ancient iron furnace excavated and documented by archaeologists is THE NAIKUND IRON FURNACE that was operative in 700 BC. In Heritage gallery you are able to explore this variety of furnaces and iron smelting process.

ACTIVITY

AS YOU SEE THE MODEL OF DELHI IRON PILLAR IN FRONT OF YOU IN THE GALLERY, LET US ANSWER SOME SIMPLE FACTS ABOUT THIS MARVELLOUS HERITAGE THAT HAD BEEN STANDING AS RUST LESS WONDER SINCE LAST 1600 YEARS.

Q. What is Bell capital ?

It is a method of shrink fitting of the individual sections that constitute the decorative top.

Q. Iron pillar is ~~24 feet~~ 18 feet above ground and 6 feet below ground.

Q. What is the length of pillar?

Length of the iron pillar is 24 feet

Q. What material is it made of ?

It is made up of crystallin iron hydrogen phosphate hydrate in the pillar drastically.

Q. How many parts are there in this Iron Pillar?

It consists of ~~seven~~ eight parts.

Q. Which professor of IIT Kanpur studied on this pillar?

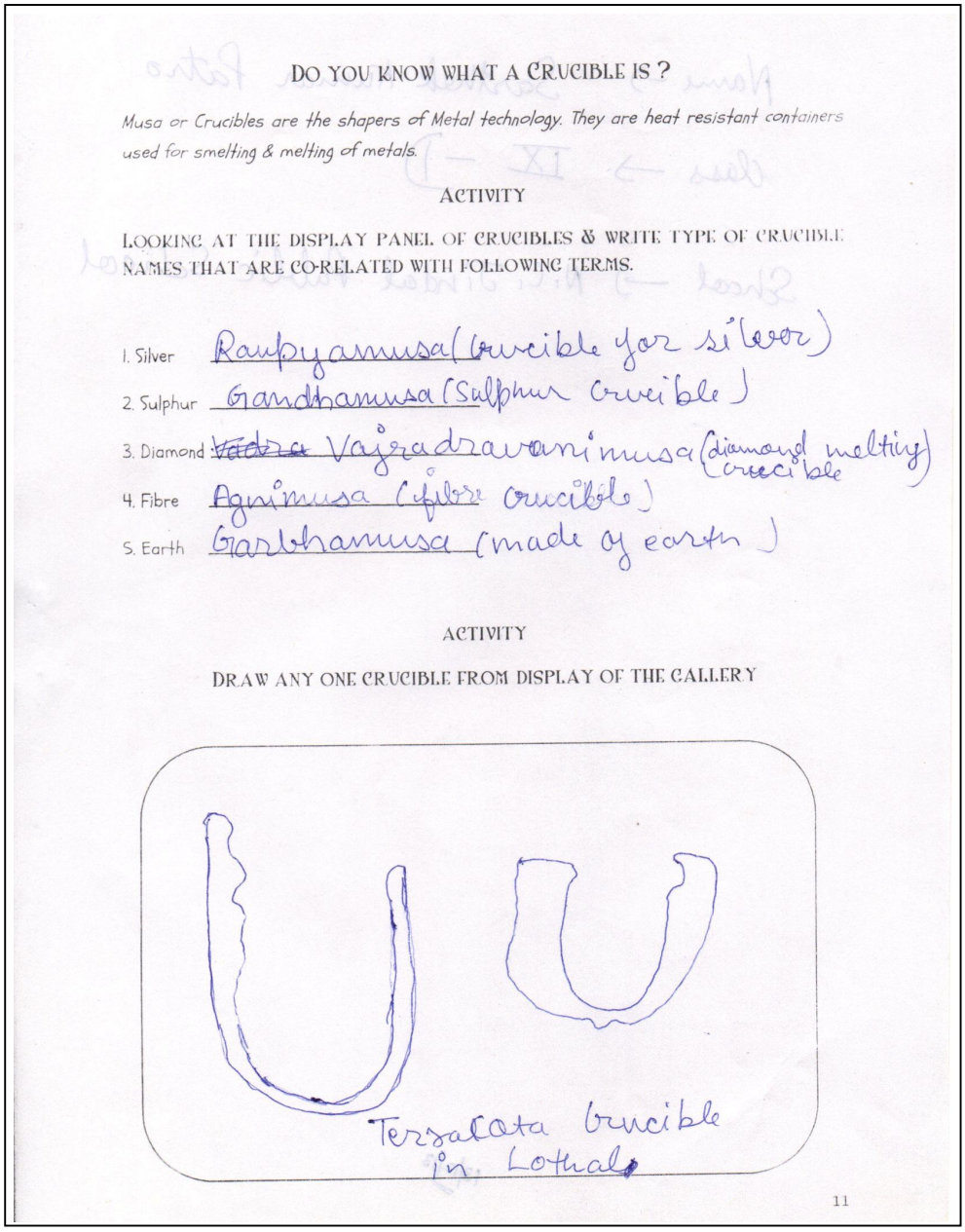
Prof. R Balasubramaniam

Q. Which unit of measurement was used during making this Iron Pillar ?

The unit of measurement was Angulam.

Fig.3.4.16 Completed worksheet on iron casting

Delhi Iron Pillar at Mehrauli archaeological site was a key highlight of the selected display for designing the (Fig.3.4.16) worksheet here. The respondent observed and processed the information in proper columns that shows the panel was relatable. The actual calculation is also visible by the respondent that reflects immersive experience in the display.



DO YOU KNOW WHAT A CRUCIBLE IS ?

*Musa or Crucibles are the shapers of Metal technology. They are heat resistant containers used for smelting & melting of metals.*

ACTIVITY

LOOKING AT THE DISPLAY PANEL OF CRUCIBLES & WRITE TYPE OF CRUCIBLE NAMES THAT ARE CO-RELATED WITH FOLLOWING TERMS.

1. Silver Raupyamusa (crucible for silver)
2. Sulphur Gandhamusa (Sulphur crucible)
3. Diamond ~~Vadra~~ Vajradravanimusa (diamond melting crucible)
4. Fibre Agnimusa (fibre crucible)
5. Earth Gardhamusa (made of earth)

ACTIVITY

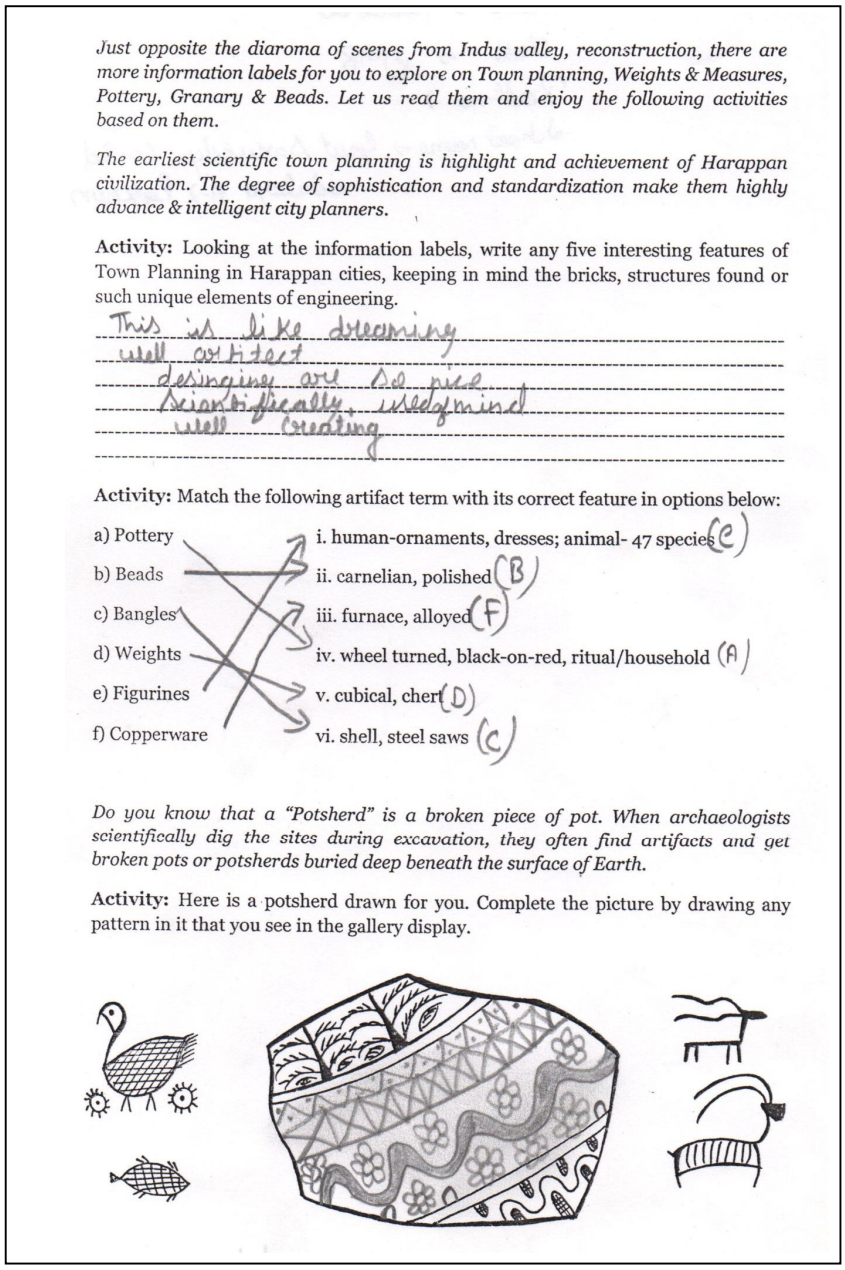
DRAW ANY ONE CRUCIBLE FROM DISPLAY OF THE GALLERY

Terracota crucible in Lothal

11

Fig.3.4.17 Completed worksheet on crucibles

Crucibles are ancient technological tools used in metal melting processes. The respondent (Fig. 3.4.17) here chose a significant archaeological finding at Lothal and drew as per observation. The drawing was not much descriptive but the text gave the indication that information was understood and learnt.



*Just opposite the diaroma of scenes from Indus valley, reconstruction, there are more information labels for you to explore on Town planning, Weights & Measures, Pottery, Granary & Beads. Let us read them and enjoy the following activities based on them.*

*The earliest scientific town planning is highlight and achievement of Harappan civilization. The degree of sophistication and standardization make them highly advance & intelligent city planners.*

**Activity:** Looking at the information labels, write any five interesting features of Town Planning in Harappan cities, keeping in mind the bricks, structures found or such unique elements of engineering.

This is like dreaming well architect designing are so nice scientifically, wide mind well creating

**Activity:** Match the following artifact term with its correct feature in options below:

| | |
|---|---|
| a) Pottery | i. human-ornaments, dresses; animal- 47 species (E) |
| b) Beads | ii. carnelian, polished (B) |
| c) Bangles | iii. furnace, alloyed (F) |
| d) Weights | iv. wheel turned, black-on-red, ritual/household (A) |
| e) Figurines | v. cubical, chert (D) |
| f) Copperware | vi. shell, steel saws (C) |

*Do you know that a "Potsherd" is a broken piece of pot. When archaeologists scientifically dig the sites during excavation, they often find artifacts and get broken pots or potsherds buried deep beneath the surface of Earth.*

**Activity:** Here is a potsherd drawn for you. Complete the picture by drawing any pattern in it that you see in the gallery display.

Fig.3.4.18 Completed worksheet on Harappan towns and artefacts

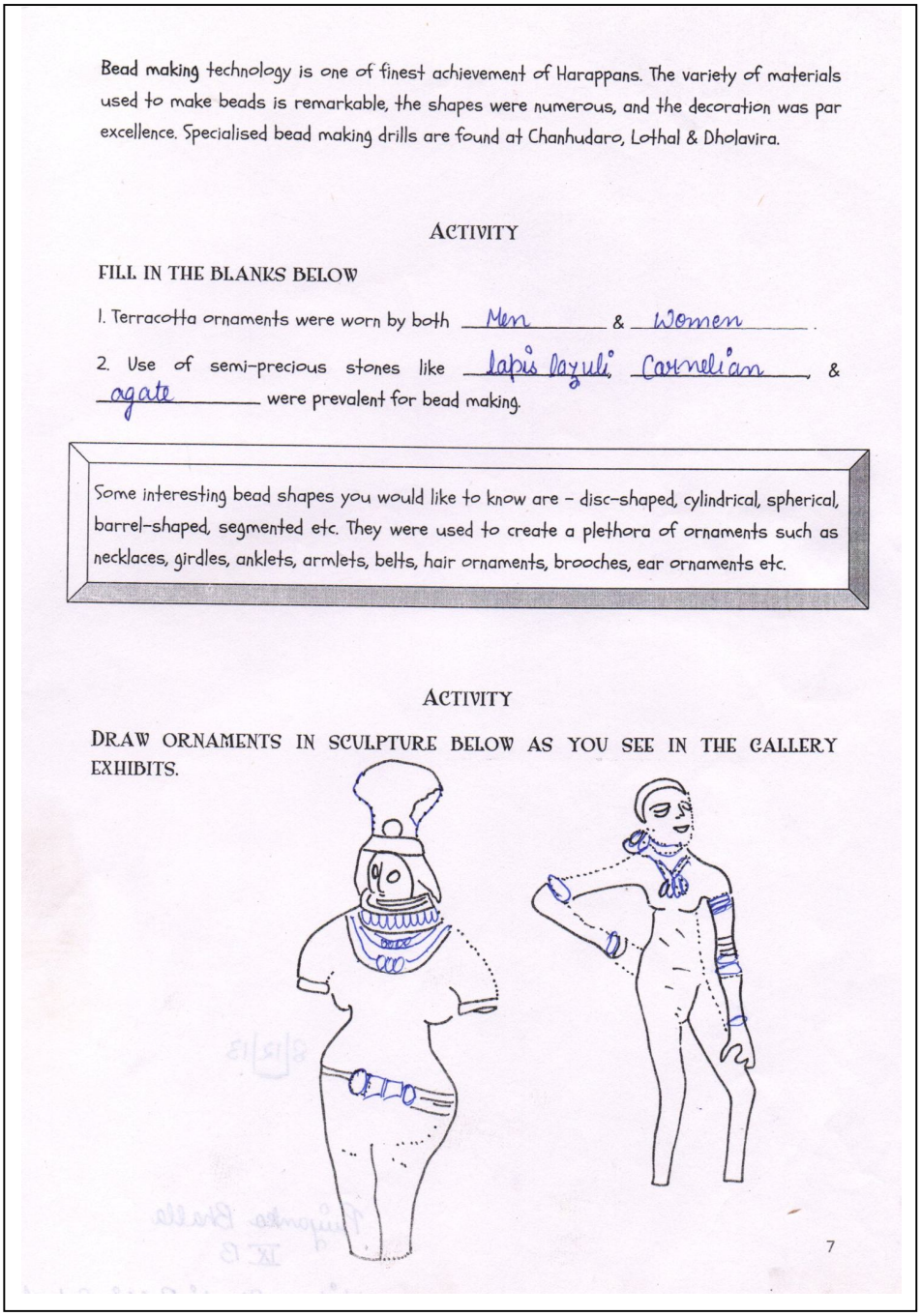
Fig. 3.4.18 shows a worksheet with 3 activities (subparts) to be completed by the respondent. The first part was related to exploring the features of town planning of Harappan cities. The respondent tried to answer the question but was not able to derive the key elements requested. This might indicate that panel with exhaustive information may confuse a child rather than giving simple facts before they go back.

The second part of the worksheet was a match the columns activity based on Harappan crafts and material used. The perfect matching of answers indicate that respondent understood which craft was being discussed and the key information related to that aspect was selected as appropriate response. In this simple activity, the respondent actually read the label and chose best suited information to the corresponding columns. It indicated the label (text) processing skills of children to derive information and learn from them.

The third part of worksheet was description of potsherds and its purpose and significance as an archaeological finding. The respondent created a pattern showing the creativity skills and the urge to express a design or information different from what was shown in panel. This act shows that respondent enjoyed creating an individual piece of art while learning in the gallery. This was a light mood activity and respondent took equal enjoyment in doing so.

Drawing from 3D object and expressing on paper hints towards the noted information that was observed by the child. The exact information was penned down, and facts were prioritized before imagination.

The worksheet based on describing salient features of jewellery (Fig. 3.4.19) of Harappans, was designed to make children imagine how people were conscious in dressing and adorning, even in the past. They had a refine taste of clothing and ornamentation. The respondent chose to complete the sketch but there were some children who actually made extra strands of necklaces or jewellery to give it a personal touch of imagination.



Bead making technology is one of finest achievement of Harappans. The variety of materials used to make beads is remarkable, the shapes were numerous, and the decoration was par excellence. Specialised bead making drills are found at Chanhudaro, Lothal & Dholavira.

ACTIVITY

FILL IN THE BLANKS BELOW

1. Terracotta ornaments were worn by both Men & Women.

2. Use of semi-precious stones like lapis lazuli, Carnelian, & agate were prevalent for bead making.

Some interesting bead shapes you would like to know are – disc-shaped, cylindrical, spherical, barrel-shaped, segmented etc. They were used to create a plethora of ornaments such as necklaces, girdles, anklets, armlets, belts, hair ornaments, brooches, ear ornaments etc.

ACTIVITY

DRAW ORNAMENTS IN SCULPTURE BELOW AS YOU SEE IN THE GALLERY EXHIBITS.

7

Fig.3.4.19 Worksheet on Harappan jewellery

The activities conducted by the researcher such as gallery talk, tour and worksheets based on this gallery, it can be said that people appreciate the rich heritage through the content of exhibits, in this gallery. Some of the completed worksheets quoted here reflect how children observed the exhibits and derived the information. In this purpose they read through the labels, saw the displays and discovered the information through various sources available in the

exhibition. Thus in process of completing a task, children actually learnt few archaeological aspects through the object oriented dissemination activity.

The worksheet provided an advantage to children who came for a visit in gallery. They actually participated in a knowledge generation and sharing process. The respondents or children who interacted would share this extra piece of information with fellow friends which might have remained unnoticed otherwise. Simply visiting a gallery can only give an experience of being in a museum space but the visit was qualitative enough for generating any outcomes have to be recorded in some form or the other. To derive at learning outcomes and relatable inferences, worksheets added that touch to their normal visit and in this process the display panels were also analysed.

Apart from the Heritage gallery display, a worksheet (Fig. 3.4.20) was developed by the researcher for one of the most significant ancient water monument namely Stepwells. As the Science centre don't have display related to Stepwells, a separate page on ancient water management technology was developed in this booklet, in order to introduce visitors with the same. India has a glorious history of ancient water monuments that were unique in purpose and architecture. There were baolis, vavs, ponds, artificial lakes, pools, sluices, tanks, wells etc. The term 'stepwell' itself indicates the basic features of architecture and function of this peculiar kind of well-monument. Both the parts of the term, i.e., 'step' and 'well', characterize its inherent features.

**STEPWELLS – Ancient Water Management Technology in India**

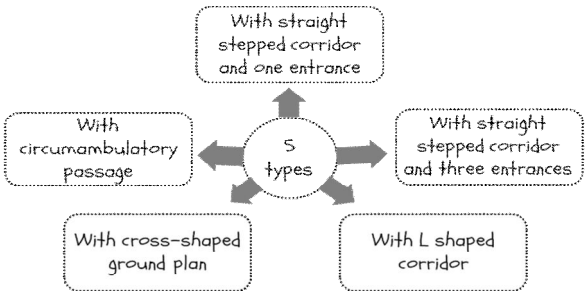
India has a glorious history of ancient water monuments that were unique in purpose and architecture. There were baolis, vavs, ponds, artificial lakes, pools, sluices, tanks, wells etc. The main criteria were to harness water and get recharge from various sources of water and make it available for rest of the year.

One of a unique kind of water monument was a Stepwell. The term 'stepwell' itself indicates the basic features of architecture and function of this peculiar kind of well-monument. Both the parts of the term, i.e., 'step' and 'well', characterize its inherent features. A stepwell is but one type of the various existing kinds of well-monuments in India. A more correct term could be a 'staircase-well' or 'stepped well'.

The location of a stepwell is basically at three different places:

1. Connected to a temple or housing a temple or shrine inside.
2. Within or at the edge of a village.
3. At the sides of overland-roads of completely outside villages or settlements.

The main function of a stepwell is to supply water, mostly deriving their water from underground springs. As the water was not exposed to heat and sun, it was free from contamination and had constant flow of freshwater filtered through the earth.




Some magnificent Stepwells you can also see in the heart of the city, Delhi which date back to 13th century…

- Gandhak Ki Baoli at Mehrauli - It takes its name from the smell of gandh (sulphur), which allegedly emanates from its water. It has 5 storeys underground & a circular well.
- Agrasen Ki Baoli on Hailey road, Connaught Place – It is finest in Delhi, a complex structure in 4 levels and with more than 100 steps.
- Baoli of Nizamuddin – One of the most important stepwells in Delhi.
- Rajon Ki Baoli at Mehrauli – It is an extraordinary monument has 66 steps lead down to the basin in the fourth level underground.

*(Book Source: The Stepwells of Gujarat by Jutta Jain Neubauer (1981) Abhinav Publications, New Delhi)*

Fig. 3.4.20 Worksheet on stepwells

Details about location and function of stepwell, along with its salient features were mentioned for information of the visitors. Some examples of magnificent

Stepwells one can see in the heart of the city, Delhi such as Gandhak Ki Baoli at Mehrauli, were also added as a point to make them explore the real monument *insitu*.

**Information Revolution gallery** on the first floor at Science Centre has display of archaeological heritage. It has a display on Pre-historic site of Bhimbhetka (Fig. 3.4.21), Harappan seals and Ashokan inscriptions. It somewhat connects the information provided in Heritage Gallery. During the research study, this gallery was also noted as an area of educational source.

Fig.3.4.21 Prehistoric cave painting in Diorama

This gallery portrays the story of evolution of Communication technology over past 6000 years in India. This is a unique display which initiates from the cave paintings and goes till the age of Internet. The diorama depicting Bhimbetka site gives a feel of actually visiting a cave site. This was the earliest form of pictorial language that was created on caves to communicate life and stories. Then was proto historic record in form of motifs on seals and pottery that indicated a sign language among people. During historic period, the inscriptions on stone, metal or palm leaf etc. were the next step in the evolution of communication processes, and these are still in practice in

different forms. Connecting communication to archaeology can be understood through these displays and patterns of teaching and learning in ancient times can be seen through them.

Archaeologists use material remains to interpret past human activities, and the above displays in the National Science Centre act as effective instruments for interpretation for communicating didactic experiences to young learners. At the same time it serve the educational purpose and informative for various age groups of common public about heritage, culture and archaeology. Museum exhibitions themselves are designed to offer degrees of involvement (Kotler et al. 2008). This out of book experience has its own benefits as it relates to the missing links that are lacking in curriculum. The plethora of interactive, immersive exhibitions and programs, the tours outside the museum and the virtual reality of the Internet have created something quite beyond the scope of the traditional museum (Kotler et al. 2008). The 2D images in book sometimes mislead the students about the actual artefact, but seeing a replica, of almost same feature and size, or seeing a diorama with appropriate representation, fill the information gap. National Science centre through its arduous effort, has recreated all those connections to provide a glimpse of human past at its best.

**Regional Level Case Studies**

## 3.5 CASE STUDY 4

### TOUR AT ARCHAEOLOGICAL SITE & MUSEUM: DHOLAVIRA

Researcher acted as a resource person and took Heritage tour for school children of Delhi Public School, Surat (Gavier), of class VI onwards at – (a) Lothal & Adalaj Stepwell, Ahmedabad ($2^{nd}$ to $7^{th}$ February 2014) and (b) Dholavira, Kachchh ($24^{th}$ November 2014- i.e 23 to 27 November 2014). The museums at archaeological sites of Lothal & Dholavira are adjacent to the partly reconstructed and preserved sites.

The heritage tour was organised by a private organisation who consulted the researcher in advance to plan and design an effective and meaningful heritage

learning experience to students. The activities were planned in such a way to visit Lothal and Dholavira, interpretation of the site so as to make students understand the significance of these civilization sites and the role of archaeology in revealing and maintaining the same.

**Visit to Dholavira site & museum**

The tour to Lothal & Adalaj Stepwell was a starter to engage children with the feel of visiting an archaeological heritage site and explore the environment they are situated in and their socio-cultural perspectives. After the site tours to Lothal, researcher accompanied another group of children to Dholavira where the tour begun with site visit of Dholavira, and an interaction (Fig. 3.5.1) was later done inside the museum premises.

During the site visit the expanse of site was taught to children briefing about the major divisions of city i.e. Citadel (Castle & Bailey), Middle town and Lower town and the two water channels, Mansar (in north) and Manhar (in south). Walking around the structures the first one to notice was the ancient rock cut reservoir and the children were told about the ancient water management systems and the town planning of city. The ancient ruins of Dholavira had terracotta pipes channels, underground wells and other water storage structures that were shown to the group. They were shown the stadium and other places of craft manufacturing units. The difference between the size and structure of houses in divisions of city was also discussed during the site visit.

Fig.3.5.1 Researcher orienting participants

Coming to the museum later, the students were briefed about what they can observe inside the museum and connect the past with present. Children were shown objects/artefacts in Dholavira museum, and made an effort to connect them with functional perspective of the present day objects. The activity initiated inside the museum, where children observed (Fig.3.5.2), explored and brainstormed. Visiting to an actual archaeological site, gives a strong sense of understanding about the vastness and feel of site that cannot be visualized in books or photographs. Walking on and around the structures and parts of the archaeological site, was a completely novel experience to children which will be cherished throughout their lives.

While exploring an archaeological site, children do have to use their imagination and wisdom in order to relate the site with the cultures of past which have not survived now. Children prefer participatory experiences over the taught courses, and hence an initiative to introduce them to actual archaeological site was planned and organized to connect them with the discipline of archaeology. The artefacts housed in the museum and making sense of the objects with the context of the site will happen only on the site, which makes the site visits, very important part of learning exercise.

Fig.3.5.2 Children observing the display, Dholavira Site museum

Fig. 3.5.3 shows the creative outputs of children after observing the display at Dholavira museum. Children created images of artefacts and connected their significance or probable uses keeping in mind the similar objects seen in present. The connections of past with present was reflected in this activity.

Fig.3.5.3 Outcome of the activity

Museum educators examine the impact of museums on information processing, knowledge acquisition, and, ultimately, the role of informal learning in education ((Kotler et al. 2008). Actual visit to archaeological site enhances the degree of involvement with knowledge of material culture and lifestyle of the habitants of bygone era. Thus this tour was planned by school authorities in order to sensitize children towards archaeological heritage and in this process researcher acted as a mediator to disseminate information that may accomplish the mission of creating connecting links and learn lessons of past civilizations. The artefacts that originally were part of site then later shifted in the museum can only be understood through such cumulative learning activity and tour.

Connecting and learning with original artefacts was altogether a different experience where inquiry based learning inspired curiosity among children, they made sense out of the museum display. Creating this thought provided a promising output in the form of images/drawings generated by children at the end of day. Activity continued till evening as children wished to add more ideas they could gather within the stipulated time. The drawings that reflected thoughts and observations of children about linkages of past and present were a successful endeavour. Going beyond the introduction of objects or sites, the context of the collection was learnt by the participants.

## 3.6 CASE STUDY 5

## CLAY WORKSHOP AT MUSEUM OF ARCHAEOLOGY, DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY, THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA, VADODARA, GUJARAT.

It was an existing practice that, the museum at department provided educational services to schools frequently. School children were allowed for planned visits and observe galleries, artefacts and documentaries as per education and learning requirements.

To connect children with collection housed in department and the significance of archaeology as a subject, a clay workshop was organized for the class 9th students of Experimental School, Vadodara under the guidance of Prof. Ambika Bipin Patel, (PhD supervisor).
This workshop was an effort to make children understand varieties of terracotta found from diverse sites of Indus Valley civilization located in Gujarat and how baked clay (terracotta) played a major role as a raw material in making toys. The purpose of conducting the workshop (22nd September 2012) was to make children motivated to explore about terracotta materials in museum collections associated with Harappan civilization.

Art is an excellent medium to make learning fun. The cognitive ability to understand a concept gets enhanced when a person does some hands on activities. Clay is a good medium of art to make children understand the three dimensional shape and process behind creating a 3D model. The third objective of the workshop was to make social science subject more interesting for school children, through clay art so as to cover the theme of Indus Terracotta which is connected to the curriculum. This was also aimed to motivate children to visit more museums, and search digital sources related to the same theme in order to know beyond the textbooks.

As observed from Gujarat board text books, the idea of clay toy Harappan artefacts, have not described in detail. Only very few images furnish the information. According to their school syllabus it was observed that the Gujarat board textbook content was not elaborate. In NCERT book, good photographs and pictures, maps as well as line sketches have been kept in chapters related to Harappa, to make the student acquainted with the significant aspects and understand them well. Due to these reasons school children often miss the idea or thought process of the unique aspects or material findings of an archaeological site or a civilization. Museums are flexible in contrast to schools. They provide questions, and not all the answers. The students, who were selected for the activity, had already learnt about this civilization in their textbook in the previous classes.

Arrangements for activity involved preparation of sketches, some models of actual figurines, material required for clay moulding, and the department-school co-ordination. Illustrations were prepared by researcher, and original Terracotta object from the museum collection were selected for the orientation, discussion and viewing. The schedule of the workshop was pre-decided with the school based on the convenient days available to them. Two of the school teachers, one of social science and other of Art, were arranged by the school to co-ordinate during the workshop.

The day workshop was to be conducted, all the required material such as workable clay, water containers, clay tools, samples of some figurines and handmade sketches of figurines, and slide projector were set up in the art room in the school. To orient children with the theme of workshop and the terracotta art of Indus civilization, Prof. Ambika Patel provided slide show in the art room of the school on terracotta of Indus civilization.

After the orientation and briefing the concept, students were allowed to view the original terracotta materials displayed for them. Thereafter the children were verbally given instructions to make any object as per their choice.

Children were innovative in using their imagination in giving new shapes and designs to the objects they were making out of clay. Many of them created different variety of animals (like elephant, camel, deer), human figurines, masks, cart frames (with and without rider), ornaments like beads, necklaces, bangles etc. Through participatory observation it was noticed that clay moulding process and designing done by children included methods like pinching, incising, appliqué (for eyes, nose etc.), that too very efficiently. It seemed as if children were enjoying the activity and were encouraged to apply new ideas in their artwork. This activity though was a fun filled process for children, but made a positive impact on understanding the concept of Indus terracotta. The children were actually applying their ability & thoughts to create an artefact or figurine (Fig. 3.6.1a, b, c, d) which was an idea of their ancestors at some point of time.

Fig.3.6.1a A girl making a bangle similar to Harappan TC bangle

Fig.3.6.1b A human figurine adorned with ornaments made by a student


Fig.3.6.1c. Recreated mother goddess

Fig.3.6.1d. Harappan cart (with rider) recreated by student

During the activity final year BA students, from the department, provided help. Moreover the school teachers also monitored the activity. After the scheduled time period was over, children were given instructions to wash their hands and settling down back at their places. Meanwhile this gap was utilized

to pick final molded objects in the tray. After a short break the children were asked to express their views as feedback about this activity. Children were excited, happy and felt that more such workshops must be conducted to make learning easy and interactive. Many of them were busy moulding with the left over clay and were discussing about the objects made by fellow classmates.

The school principal expressed gratitude towards the effort made by the team of Museum of Archaeology. After the workshop, the final moulded artefacts (Fig. 3.6.2) were brought back to the department and were displayed in a showcase within the department for students and visitors to see the outcome of the activity.

Fig.3.6.2 Display of recreated objects.

We could infer that the workshop was successful based on the outcome of products created by children and their feedback expression for the activity of doing and learning. The variety of objects created by school students with such fine details and enthusiasm was appreciated by both museum and the school. These kinds of activity enable school children to know the possibilities of knowledge and exploration opportunities lay beyond the classroom. This helps in clarity of concept and wider scope of understanding and learning a subject.

It also provides insight for innovative means of teaching for the school to explore and use. The visual aids and imagination of children created wonderful pieces of moulded clay figurines that resembled many TC artefacts of Indus Valley terracotta toys. Toys are not only an index to human activity but reflect the strong undercurrents in the structure of society (Dongerkery 1954). Thus the purpose of conducting the workshop proved to be fruitful and creative endeavour to supplement the textbook knowledge of school children. The purpose of engaging and stimulating imagination of children enliven new ideas and promote heritage understanding for generations to come.

## 3.7 CASE STUDY 6

## SEAL MAKING ACTIVITY AT PUNJAB STATE WAR HEROES' MEMORIAL AND MUSEUM (PSWHMM), AMRITSAR, PUNJAB

PSWHMM, Amritsar is an important mile stone in annals of war heritage of India. It was inaugurated in October 2016, and is spread in an area of seven acres spanning 9 galleries, garden area, visitor amenities and open air display (Fig.3.7.1). Galleries on display cover themes of history, demography, culture of Punjab and nationally significant wars such as Kargil or Indo-Pak wars etc. The memorial is depicted by a steel sword rising 45 meters as it were to reach out for sky. Museum has a state-of-the-art 7D theatre which shows documentaries on heroism of India's soldiers.

Museum conducts regular tours and educational programs for children. As a part of one educational summer program, researcher conducted an activity on Seals' replica making at the museum. This was aimed to make children aware of the earliest people and their material culture. The images of artefacts of Harappa are visible in the wall display panels. The museum has a collection beginning from earliest civilization and history of India to connect with later Sikh heritage.


Fig.3.7.1. Exterior view of the PSWHMM, Amritsar

The activity was conducted in June 2017. The process of activity begun with a brief orientation about Harappan seals, their functions and use in the ancient times. This was followed by a short tour provided by the researcher to children to the first gallery of the museum. The children observed the Indus valley images and artefacts associated to site that reveal the Indus time. Children then gathered back for the activity and were provided sheets to draw (Fig. 3.7.2) designs of seals they wish to recreate in mouldable clay paste. Reference books with illustrations and sketches were shown to the children for ideas. Children chose motifs and selected the seal designs by drawing them on the sheets.

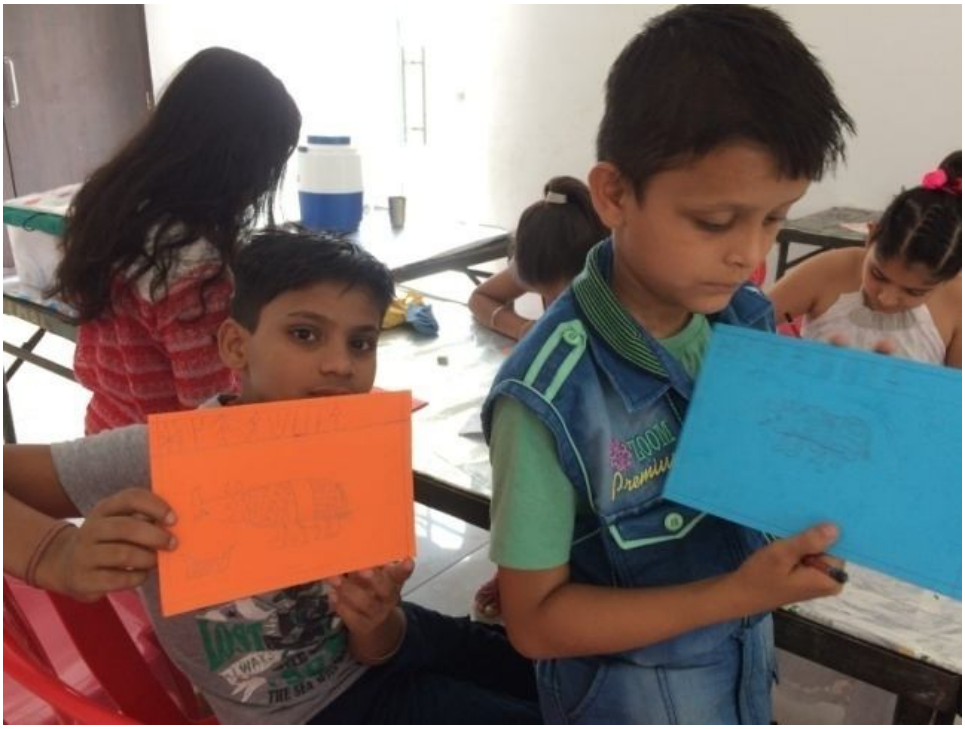


Fig.3.7.2 Drawings created by children


Fig.3.7.3 Researcher showing the process of creating mouldable clay


Fig.3.7.4 Sketch & replication of seal by participant

Clay dough mixture was prepared by mixing white clay with water and fevicol (Fig. 3.7.3) and instructions were given to initiate the making of seal by appliqué method of moulding (Fig. 3.7.4). Children initiated with appropriate base (square) to hold the motifs they were to place on the base. By using wooden tools, the seal designs were applied and at places carved delicately.

As the children belonged to different age groups, it was interesting to observe how each one express their ideas on paper and in clay (Fig. 3.7.5).

Fig.3.7.5 Different age group children making seal replicas during workshop

Fig.3.7.6 Seals created by children during the workshop

As children were very inquisitive about the seals, their making techniques and possibilities of survival, they wanted to know about the motifs and the signs (pictorial) that are seen on different seals. The researcher could provide the information related to Harappan steatite seals and their possible crafting

techniques. The hands on activity with brainstorming discussion of younger kids inculcated a sense of museum liking and made them attracted to the curios objects housed in the museum. The outcome (Fig. 3.7.6) was many replicas of beautiful seal designs that children carried back home as souvenir of memory and a learning outcome for future.

Seals, though a small artefact in size, proved as an excellent conversation starter as it is associated with social, economical, cultural aspects of Harappan civilization. Children had a chance to explore the archaeological knowledge through simple museum activity that they might not have done individually at their homes. Doing such an activity together shows the variety of ideas and thoughts that emerge as an outcome of learning and understanding process.

## 3.8 CASE STUDY 7

## POSTER MAKING ACTIVITY CONDUCTED AT NAVLAKHI VAV, VADODARA

Heritage Trust, Vadodara is an active organisation that focuses on promotion of heritage through awareness and activity programs. It is a nongovernmental organisation works closely with school children all over Vadodara, and conducts activities like quizzes, story sessions, art and craft activities etc. in relation to heritage promotion.

A poster making activity focusing on the aspect of water conservation - connecting heritage structures such as the stepwells, was conducted as a part of program organized by Heritage Trust, Vadodara and INTACH. This event was held at Navlakhi Vav, Laxmi Vilas Palace, Vadodara ($19^{th}$ to $21^{st}$ January 2012). Researcher was a part of the team as resource person, for the three day activity in which children used heritage structure as a point of reference to learn about past cultures. They replicated the thoughts and ideas on paper, clay and in form of poetry.

Through the process of creating awareness on water conservation strategies, the organisation chose an ancient water monument that was indispensible

heritage structure on trade routes or for religious and utilitarian aspects. The site chosen for activity was an indirect approach in helping to preserve and protect the heritage/ archaeological structure. Children were able to relate with the existence and significance of heritage structure created by their ancestors for generations to come.

To initiate the learning process, the group that comprised of secondary school children from different schools of Vadodara, were given a tour by the researcher inside the heritage structure, Navlakhi Vav (Stepwell). Visiting a stepwell was an exciting experience for these children as usually these structures go unnoticed until someone highlights them on trade routes, or nearby sites. Gujarat being a dominant trade route site has stepwells of various types spread across the state.

An orientation about the significant functional aspects of an ancient water management structure was given to participants in beginning of the activity. Children were enthusiastic to use motifs and ideas from the structure and its ornate patterns of architecture, for their informative poster making activity. Researcher (Fig. 54) was guiding and motivating participants throughout the activity and was observing how the children were executing the idea of Water conservation reflecting ancient strategies of ancestors. The heritage is significant learning tool that is to be respected and the hidden narratives are to be explored for future generations. The ideas presented by participants on paper (Fig. 3.8.1, 3.8.2) gave a clear idea of sensitization they had developed towards these ancient monuments and in coming years if they spot a similar structure they can disseminate this acquired knowledge to future generations. The snowball effect of creating heritage awareness and promotion is a must to protect heritage for posterity. Thus activity that is being conducted close to the structure makes the story behind the structure become more effective and lively. The visual learning enhances cognitive memory thus inculcating a long term benefit for promoting irreplaceable and valuable heritage.

Fig.3.8.1Interaction with participants

Fig.3.8.2 Poster making in process


Fig. 3.8.3 An interesting poster by participants

As visible in Fig. 3.8.3 the group of participants recreated a pillar motif seeing the Navlakhi Vav. They wrote about the significance of water management and storage. During the activity children showed interest about why a utilitarian monument is decorated. They were fascinated to know about the patronage of rulers, the creative marks of artisans and differences in regional architecture was one of the reasons for such variation in monuments. This fascination became a significant point of expression in their activity outcomes.

**Fairs such as Expos and Exhibitions** can be used as a marketing site for museum outreach and promotion. In worldwide the museums collaborate with theme parks, airports, malls, markets etc. and promote their services. They create interactive corners to attract audience to actual museum site. Mumbai airport in India has a museum corner. Similarly at Udyog Bhawan metro station in Delhi, National Museum, New Delhi has setup a replica display which is a Museum corner. These examples are not meeting the actual need to educate the masses but they create a sense of curiosity to attract visitors on actual site of activity or learning. Many non government setups are available to collaborate and promote heritage and tap the potential of its collection with a different viewpoint and fresh approach. Such corners can be replicated to

develop a sense of presence of museums as significant sources of heritage keeping. This acts as a catalyst to enhance understanding about functions and services that museum can provide if explored wisely.

Children of all ages, who wish to know or visit a museum, should be motivated by parents or teachers. They can be provided with an understanding anywhere which has a proper set up of being learning space, formal or informal. A fair which provide such a situation is an alternative for providing learning experiences.

## 3.9 CASE STUDY 8

## HERITAGE/ ARCHAEOLOGY CORNER, HICHKI MELA – LEARN WITH FUN

An open to all fair called Hichki Mela was held on 28th May 2017 at Gurugram. An educational and fun fair for children up to age of 12 years, was organised wherein a corner (Fig. 3.9.1) was exclusively related to archaeology, displaying artefacts and communicating information. Activities related to prehistory, world civilizations and Indus valley pottery and seals, was conducted by the researcher as a resource person assisted by Ms. Namita Malik (museum professional and freelance artist).


Fig .3.9.1 Researcher with Ms. Namita Malik at the heritage corner

The activity was executed as per the prior idea of allowing participants to choose whatever they wish to recreate by looking at sketches, books and replicas kept for their reference. It was a choice based participation of children who felt that archaeology can be enjoyed and explored through hands on sessions. The researcher made all the necessary arrangements that were to be done for activity. The backdrop of the heritage corner was aptly projected depicting the ancient city of Indus, designs of rock art paintings or pottery. Readymade kits that included pots, stones with smooth surface, mouldable clay, colours and reference books etc. were kept in the activity area. Apart from 2D sketches and books, small samples of pots (painted with designs), and stones (painted with rock art motifs), and replicas to be used as reference for hands on sessions, were setup in a corner of this event as kiosk. Reference sheets depicting various motifs, and scripts of different civilizations, were kept in order to give the participants full freedom to choose and create whatever they wish to make, that has a flavour of archaeological knowledge aspect in it.

**Learning by Fun**

The researcher acted as a resource person provided a platform for children to learn archaeological heritage. Replicas, images and sketches were shown to children to generate interest in the subject. Children were openly interacting and curiously asked about the objects. Some children had prior understanding about Indus civilization, and others were attracted by the artefacts due to curiosity to know. The researcher provided information about the objects and instructed the participant to draw and recreate in clay, or on pot/ stone. Younger children enthusiastically made figurines of animals and birds, TC masks, painted on stones, pottery (Fig. 3.9.2, 3.9.3, 3.9.4) which were interesting for them. Elder children did a good job in even recreating figurines of Mother Goddess.

Fig .3.9.2 TC mask making

Fig .3.9.3 Prehistoric art on stone

Fig. 3.9.4 Painted Pot

As the workshop was open to all, anyone was able to participate. It has been observed that the inclination towards creation of miniature Indus terracotta like clay models, prehistoric drawings on stones, and painting on pottery was dependent upon the interest of children and the parents or accompanying person.


Fig. 3.9.5 Kiosk and replicas produced

As visible in Fig.3.9.5, the participants recreated artefacts resembling the objects and images they observed around them. The output was authentic and very close to real object that reflects the understanding developed during the activity. Learning was amalgamated with fun and this led to a better exploration of facts by the young children. This kind of events result in creating awareness about archaeological representations of material culture, as well as act as a medium of observation to gather information of interests of children in an informal set up. These forms of observation reveal the learnt aspects and curiosity that is left behind after the exploration in books. The children who participated expressed interest in seeing actual artefacts. They were guided to visit the National Museum, New Delhi that houses collection of Harappan terracottas; which is nearest one for them. The children who were carrying back these souvenirs of educational yet fun filled activity, were happy

to recreate the artefacts resembling life of people, especially children if one can say, of bygone era, and they were feeling elated to get to know more about these hidden mysteries of past.

Initially Children remain curious to see the objects displayed, and after recreating the objects, they appeared to be attracted towards the field of archaeology as a subject of study and learning of the human past. Once they participate in activities similar to the Hichki Mela with heritage corners they were able to recreate the prehistoric paintings on small pots and stones, and clay figurines that resembled Harappan terracottas and many such interesting pieces of expression as decorative items and will be developing artistic skill and historic understanding.

Such hands on sessions make children aware of the possible options they can explore for knowing about archaeological collections and benefits of visiting museums. Museums are only sources that can meet these curiosities by showing the 3D representation that gives a sense of colour, size, texture, form or one may say a best vision of an archaeological object.

Such programs develop a sense of belongingness in youth and make them aware of the things they lack in school textbooks. Books are important but not an end to knowledge or education. The vast pool of knowledge lies beyond the periphery of a school or a formal institution. The four walls of a school are not the only temple of education, rather a media to teach basics of human life. It's a good question that how the crucial elements of life can be taught without considering the rich culture and heritage that our country possesses. Here the answer lies with the educators and the resources which can create opportunities for learning, throughout the visit and encourage young minds to voluntarily stimulate a sense of pride for heritage.

Physical encounters with real, authentic specimens foster awe-inspiring reactions among visitors that lead to understanding and thinking in the truest sense. Researcher's aim to access educational value in objects of archaeology led to creating activities that made learning effective and display was seen with a much wider aspects of disseminating knowledge in myriad ways.