Skill India
कौशल भारत-कुशल भारत

GJSCi
Gem & Jewellery Skill Council of India

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Training Manual for Worldskills competition (Skill #27 : Jewellery) Version 1.0 : 2019

WorldSkills India

worldskills

Skill India
कौशल भारत-कुशल भारत

GJSCi
Gem & Jewellery Skill Council of India

N·S·D·C
National
Skill Development
Corporation
Transforming the skill landscape

Training Route for #27 Jewellery - Version 1.0

Directed to all of them who wants to be a competitor

WorldSkills India

worldskills

Table of Contents

Chapter 1 : Introduction

The skill of jewellery making consists of the manufacture of fashion accessories using precious metal.

Dealing with precious metals, a jewellery maker needs to be precise, work economically and avoid wastage of materials. The work is intricately detailed and requires a high level of skill, focus, and concentration.

A jewellery competitor needs to be able to produce a variety of jewellery components.

The individual needs to know and understand:

- Procedures for checking and maintaining specialist individual tools shared workshop tools and machines
- Accurately interpret proposals for manufacture of jewellery components or complete jewellery pieces including:

• Technical drawings

• Sample pieces

• Sketches or rendered images from 3D digital models

- Determine time, materials and equipment necessary to complete projects
- Work with a high degree of accuracy and precision on fine and delicate pieces

Once he/she knows it the basic of jewellery, the competitor will learn the skills to be an excellent candidate.

A WorldSkills Test Project have a wide variety of jewellery technical elements, and each one of them will be unraveled in this manual accordingly for a candidate be able to understand and produce a great quality piece in the WorldSkills standards.

These technical elements are the elements that the experts will evaluate (give marks in) each piece.

About this manual

This manual must be accompanied by the document:

_WSC2017_TP27_AE_EN_pre – in PDF

Age limit

To be an eligible candidate the competitors must not be older than 22 years in the year of their Competition.

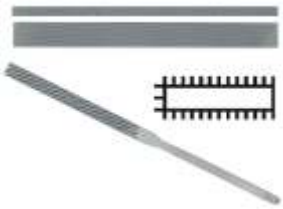
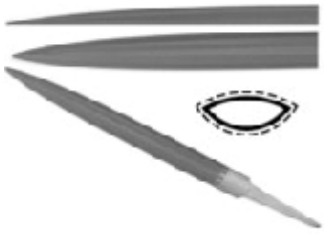
Chapter 2 : Competitor tools

Here are the basic (and necessary) tools the competitor must have in his/her toolbox in a way to make a good test project in the WorldSkills Standards.

The tools used by the candidate can determinate the final quality of the piece, which can make him/her receive good marks.

Some other tools can be developed by the trainer for the competitor in specific cases accordingly

These tools are:

Description	Quantity	Photo
Saw frames	2	
Half round ring file	2	
Bench File	2	
Crossing File	2	
Needle File Cut 2	1	

Description	Quantity	Photo
Needle File Cut 0	1	
Dividers	2	
Square	1	
Centre Punch – automatic or static	1	
Scriber	1	

Description	Quantity	Photo
Tweezers Stainless Steel Antimagnetic (set of three)	2	
Tweezers - Titanium X-Lock – Curved (1 set of 4)	1	
Titanium Rod for Soldering	2	
Bench hammers	2	
Nylon plastic mallet	2	

Description	Quantity	Photo
Mallet wood	2	
Scissor for metal	2	
Parallel plier	1	
Nylon parallel plier	1	
Plier flat	2	

Description	Quantity	Photo
Plier Flat/Round	2	
Chain Nose Plier	2	
Plier curved chain	2	
Plier round/round	2	
Cutter - End cut flush or Side cut	2	

Description	Quantity	Photo
Stand for pliers	1	
Ceramic block type hive	2	
Buffing sticks with sanding papers	6	
Flat Graver with handle	2	
Graver Flat Taper with handle	2	
Graver Onglette with handle	2	

Description	Quantity	Photo
Clamp – double end, broad Wedge	2	
Tube cutter	1	
Digital Caliper 150mm	1	
Steel ruler 150mm	2	
Glue	1	
Magnet	1	

Description	Quantity	Photo
Dapping block with a variety of doming punches	1	
Forming blocks	1	
Set of wooden doming punches	1	
Wood block for doming	1	
Optivisor head loupe	1	
Beeswax	1	

Description	Quantity	Photo
Bench Anvil	1	
Steel bench block	1	
Portable Balance	1	
Set of drills from 0,50 - 0,60 - 0,70 - 0,80 - 0,90 - 1,00 - 1,10 mm	10 of each size	
Set of drills of 1,20 - 1,30 - 1,40 - 1,50 - 1,60 - 1,70 - 1,80 - 1,90 - 2,00 - 2,20 - 2,40 - 2,50 - 2,70 mm	2 of each sizer	
Closeout Diamond Point Set Of 20	1	

Description	Quantity	Photo
Busch steel round of 0,50 - 0,60 - 0,70 - 0,80 - 0,90 - 1,00 - 1,10 mm	3 of each	
Busch steel round of 1,20 - 1,30 - 1,40 - 1,50 - 1,60 - 1,70 - 1,80 - 1,90 - 2,00 - 2,20 - 2,40 - 2,50 - 2,70 mm	3 of each	
Kit of busch cup from 0,80 to 1,90 mm	1	
Pin vise	3	
Conical tribulet	1	
Small bench vice 60mm jaw Width	1	

Chapter 3 : The Test Project

The test project is the main project of the competition. It is through the test project that the competitor is evaluated in the criteria. It is also through this that he/she can show the world how good is the work developed and receive the marks.

The Test Project have a wide variety of jewellery technical elements including:

- Ajour/backholes;
- Gallery and/or back/edge wire;
- Settings made by soldering simple jewellery components;
- Assembly of complex jewellery components;
- Doming/forming or relief work.
- A creative element that forms part of one day's module, that will be outlined by a design brief supplied to the competitor during familiarization.

The drawing is available in at least JPG or PDF. For drawing projections refer to ISO 128, either first or third angle projection. Projections will be on one sheet of A4 paper, scale 1:1. Cross-sections and three-dimensional representations may also be included.

The test projects must include a full **marking scheme**, where the experts will assess the criteria accordingly for that test project.

It's based on the test project that we will unroll this manual and reveal the training process to make it well done in the competition.

3.1 Criteria of WSC Test Project

The elements covered will be according to the criteria evaluated in a WSC test project and throughout this manual we will discuss each criterion within the production of a test project. They are:

- Criterion A – Similarity with drawing
- Criterion B – Sawing and Ajour
- Criterion C – Soldering
- Criterion D – Surface finishing
- Criterion E – Dimensions (Measurement + Mass)
- Criterion F – Piece finished on time
- Criterion G – Creative Element

Criterion A:

For similarity to drawing, the competitor will be assessed the degree to which his/her work reflects the general shapes and proportions described in the Test Project drawing(s).

For function, the Experts will assess the degree to which any mechanisms or clasps in the Competitor's work function correctly.

Criterion B:

The competitor will be assessed about the shape's dimensions and internal surface finish of technical elements involving removal of metal in his/her work. Sawing and Ajour finishing. If it's well finished and has a good look in the back hole.

Criterion C:

The competitor will be assessed about the degree of how well he/she unites (make joins), by means of solder joints, components implicitly or specifically defined as touching in the Test Project's drawing(s), and creative design sketch without discoloration or incorrect application of soldering.

Criterion D:

On the surface finishing criteria, the competitor will be assessed about the degree to which the work demonstrates a uniform, unpolished finish (equivalent to ASA 800 abrasive finish). A 20mm square flat sample piece of 18kt gold will be displayed by the Experts in the workshop area to clearly show the desired surface finish without marks, scratches or discoloration on all surfaces not assessed for criterion B.

It will be shown ahead how to leave a piece with a good surface finishing.

Criterion E:

The competitor will be assessed whether the measurements of his/her work reflects clearly marked dimensions on the Test Project drawing, within defined tolerances. Experts will assess whether the mass of the competitor's work reflects clearly marked weights on the test project drawing. All dimensional marking will be inputted using calculations and incremental percentage tolerances as agreed upon by the experts and shared with the competitors.

Criterion F:

The competitor will be assessed by whether the correct number of components and technical elements specified in the Test Project drawing(s) are present and connected to the others by means of all the soldering or mechanical joint, as specified in the technical project. He/she will be assessed if has finished the whole piece on the time determined.

Criterion G:

Competitors will have to create a design according to a theme previously shown to them and develop their design according to some technical specifications previously discussed.

This part of the piece named as "creative module" should be in harmony with the rest of the piece. The Experts will assess how well the Competitor has interpreted the design brief, taking into consideration level of creative difficulty,

relevance to current trends, similarity to hand drawn sketch.

Each one of these criteria will be fully explained and demonstrated how it should be accordingly to be a good piece in the WSC standards.

3.2 Marking form

The method of evaluation of some criteria is named as Judgment.

Judgement uses a scale of 0-3 to evaluate the pieces criteria, which indicates:

- 0: performance below industry standard
- 1: performance meets industry standard
- 2: performance meets and, in specific respects, exceeds industry standard
- 3: performance wholly exceeds industry standard and is judged as excellent

This form of marking is used in the subjective criteria. They are:

- Criteria **A , B, C, D and G**

In the World Skills Competition three Experts judge each Aspect, with a fourth to coordinate the marking and acting as a judge to prevent compatriot marking.

For the criteria **E and F** the marking form is the **measurement**. It is used for the objective criteria. It means that the competitor can have the full mark or zero. Where the measurement is used, the benchmarks for awarding partial marks will be clearly defined within the aspect.

3.3 Material for development of a test project

The training should be based on development (making) of test projects, be they from previous competitions or projects developed by the trainer according to the competitor's needs. Always focusing on the criteria that will be assessed in the WorldSkills Competition.

It must be possible for Test Projects to be manufactured from the following pre-determined list of materials without having to melt and re-cast cuttings or filings:

- 40 mmx 80 mmx 1.2 mm sheet;
- 40 mmx 4.0 mm square wire;
- 100x 2.0 mm round wire;
- 80x 3.0 mm round-tube;
- 1 gm each of Hard/medium/easy solder.

*These materials are the maximum, not necessary needing to be exactly that for every and each project, but **it may always fit** in these standards. The test project cannot use more material that it was described above.

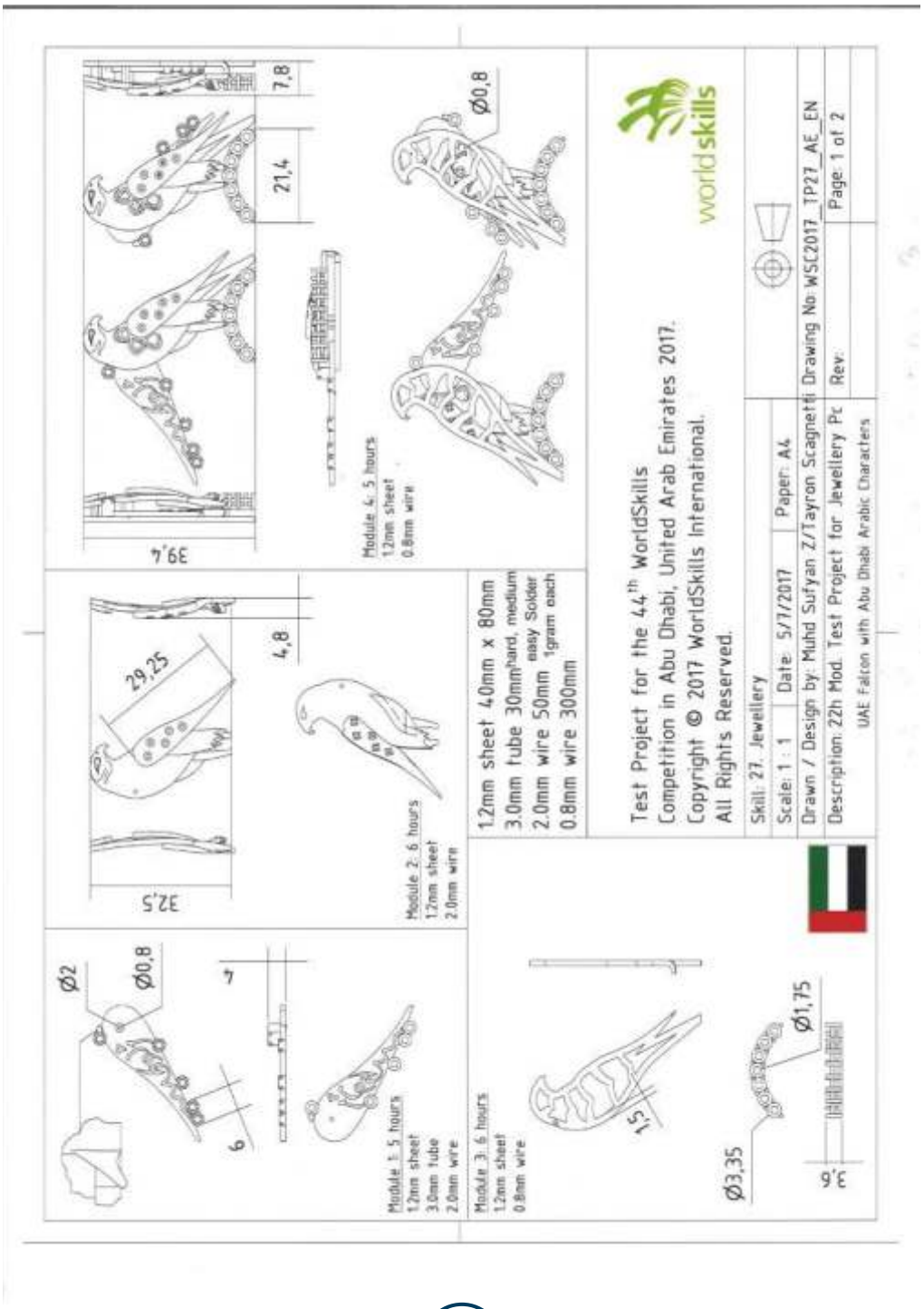
In each module a **minimum of three proposed marking dimensions**, must be clearly identified on the drawing for marking purposes. (Measurement)

Test Project is divided into 4 modules to be completed in the minimum of 17 hours and the maximum of 25 hours, but most of the test projects are designed to be complete in 22 hours divided into 4 days of work. Mainly it is one piece divided into 4 modules. It must always be designed to accommodate the timetable listed below:

- Module one: 3-5 working hours;
- Module Two: 5-7 working hours;
- Module Three: 5-7 working hours;
- Module Four: 4-6 working hours.

3.4 Development of the criteria

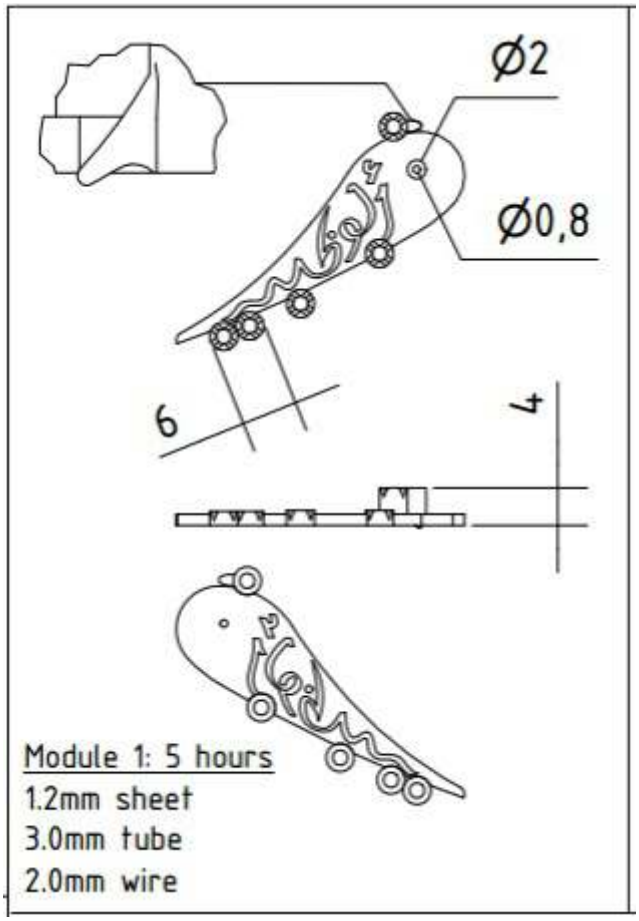
For the explanation of the criteria and demonstrations, we will base ourselves on a sample test project. This test project has been chosen because it has a variety of the tasks to be demonstrated with pictures and process:



As it was said before, every test project has 4 modules which will become a complete piece in the last day of competition. In this way we will separate module by module in order to explain the production processes of each criterion that will be evaluated at the end of each module.

In World Skills competition each point earned is very important in order to reach the big goal which is the gold medal.

So let's go to module 1:



In the module above the developed criteria will be:

- Criterion A – Similarity with drawing
- Criterion B – Sawing and Ajour (especially sawing)

- Criterion E – Dimensions

When the competitor receives the test project the first thing to do is to check if the technical design measurements are correct, if it is on a 1:1 scale, because he / she will use this design throughout the development of the test project, as well as use it to make the sawing.

Once the measurements are correct we start the production. Note that during all time, throughout the training process, the competitor must have a stopwatch in front of him / her counting the time so that he / she gets used about using the time to his / her advantage as well as producing the pieces within the time specified in the module of the test project. This way the competitor will be training the **Criterion F - Piece completed on time**.

The first step should be to cut the paper design and glue it onto the plate in a way that saves the plate. Immediately after, you should mark where you want to drill for later sawing. **Note** that the cutouts are internal and some very fine drill holes are required to be able to pass the sawing and saw it.

Tip: Before you start drilling, check if the drill is ninety degrees from the plate. This is **very important** to make a 90 degree hole. To be sure, check from two different points of view.

Once the necessary holes were drilled, we start the sawing itself - **Criterion B** - and begin to open the necessary cutouts.

For sawing, just as you drilled, also check if the angle you are sawing is 90 degrees to make it look good. Make the inside cutouts first so that you have “more plate” to hold and then cut the outside.

After sawing, file the cut piece around, so that the metal 'lines' become smooth after sawing

Always checking the **similarity with the drawing** and the stopwatch. Never waste time or perform any operation that may change the piece.

With the sawn and filed piece make the sandpaper finishing on the flat cut-out piece, so use the sandpaper on a flat surface and sand the whole piece in **one direction**.

With the cut and sanded piece we start to make the components to be soldered on this cut piece. Using the front view of the drawing, measure the 'height' of the tubes and mark on the still large tube, received for the production, the part where it should be cut.

Before cutting the tube that will be soldered, with the tube still large, make the cutouts according to what is being shown in the drawing, in a way it becomes identical to the technical drawing. Use triangular files to give the correct effect on the tube.

Cut out the small tube and pay close attention to the **similarity to the drawing** when welding the small tube to the plate.

When the small tubes are positioned in the way it is shown in the technical drawing, we begin to solder it one at a time.

Important soldering tip:

Whenever soldering work is required it is very important to make small solder balls before placing the solder in the desired place. For in this way the soldering will flow better. The flowing of it will be much better.

Cut the desired small pieces of solder and place them on the refractory brick to do this. Pass the torch fire over the pieces to completely melt the soldering pieces and it will turn into small balls. Right after that, place the solder balls in the desired welding place using the solder flux to make the solder flow very well.

Knowing this very important tip, after positioning each tube in the same way as the technical drawing, a solder ball is placed on the side at the contact between the plate and the small tube and we do the welding.

Make the soldering of all components in the same manner as previously described, very carefully.

Soldering Tip:

The soldering will always go to the side of the piece that is most heated by fire. So practice (repeat, repeat and repeat) soldering exercises to understand how the flow of the solder works and to understand how it behaves. To know and learn how to use the torch properly.

Bad soldering example.

Note that too much solder has been placed on this piece and in this case, because of the piece designer, it cannot be repaired.

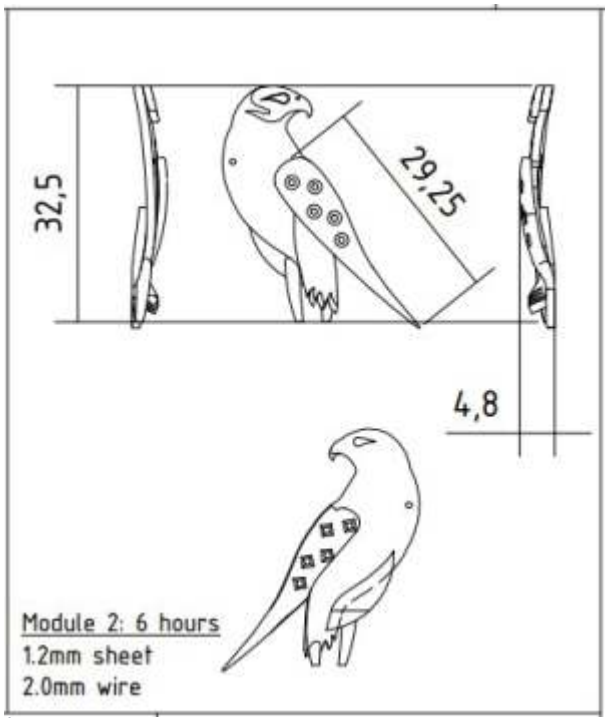
Good soldering example:

Note that the solder has flowed through the entire strip in a clean and uniform way, without excesses and without pores.

For a long soldering as shown above, place small balls along the space to be soldered and make them melt together as much as it is possible.

When all parts are well soldered, place them in the pickling solution for acid wash. Then clean all the parts in running water and dry it in air.

Module 1 finalized let's go to module 2:



In the module above the most developed criteria will be:

- Criterion A – Similarity with drawing
- Criterion B – Sawing and Ajour
- Criterion C – Soldering
- Criterion D – Surface finishing
- Criterion E – Dimensions (Measurement + Mass)
- Criterion F – Piece finished on time

For the production of the second module, as well as the others, repeat the first steps as cut the design, paste in order to continue saving plate. Cut and glue the pieces to be sawed separately for later soldering. Mark the points to be drilled holes and drill the holes with the drill in 90 degrees.

Saw the pieces apart slightly bigger so that we can shape the pieces.

Always checking the similarity which is one of the most important criteria.

After all parts has been cut-out, start to shape the pieces according to the technical drawing. Preferably use wooden punches (shaper) so that you do not mark the piece.

Always, always and always checking if the piece is becoming similar.

Similarity Tip:

Look at the drawing and understand from which angle that piece is being shown to check the similarity. Always place the piece in the way the drawing is showing. Sometimes it might be bent a bit. Put your piece in the same way (position). Look in the same direction. Close one eye and see the the piece and the drawing with the other eye. The piece should look exactly as shown in the drawing lines. If lines are appearing or the piece is a bit bigger make the necessary adjustments.

After the pieces of this module are sawn and properly shaped, cut out the outline of the backside of the eagle's wing. Glue exactly on the back of the already shaped and sawn piece in a way the ajour of the drawing matches with the hole of the piece.

Open the ajours according to how the drawing is showing on the paper. After all the ajours are open remove the paper using the torch and clean the piece in the acid.

With the piece without the paper, finish the ajours with the saw blade.

Ajour Tip:

After ajour open, use the saw blade as a file. Remove metal from the ajour walls using the side of the saw as if it was a small file. Do this in a way to make the outside lines of the ajour comes straight.

Pay close attention if the saw bled is tensioned as it should be, and take care of the back hole. It may not get marks.

Ajour Tip:

When you make the holes that will have ajour behind it, drill it with a smaller drill initially before opening the

ajours. When the ajour is finished drill the hole with the correct size of the hole as shown in the technical drawing.

Doing this some marks that might be done can be removed when the hole is 'enlarged' to the correct size.

After the pieces already sawn, shaped and the ajour already open it is time to finish these pieces with the sandpapers 300, 600 and 800. Remembering always to keep the same direction of sanding to have a good look.

Doing this, the pieces will already have the right surface finishing ready to solder between one another.

Use the sanding rollers on the shaped parts to give them a faster, smooth and uniform finishing. Use the sanding splints where the sanding rollers are not a good option, as on flat pieces (or parts).

Sand the pieces in one direction only as much as possible in a way the pieces have a good look when the process is finished.

The Golden tip:

A piece with a good finishing that has a good looking, unconsciously makes the experts that are giving marks be inclined to give good marks, because visually it is beautiful. So always work to produce the pieces that visually have a good looking. Pay attention to the correct sanding paper process and always keep the piece clean and beautiful, passing it in the acid every time you complete a finished soldering process.

Right after that, we move on to the soldering of the parts.

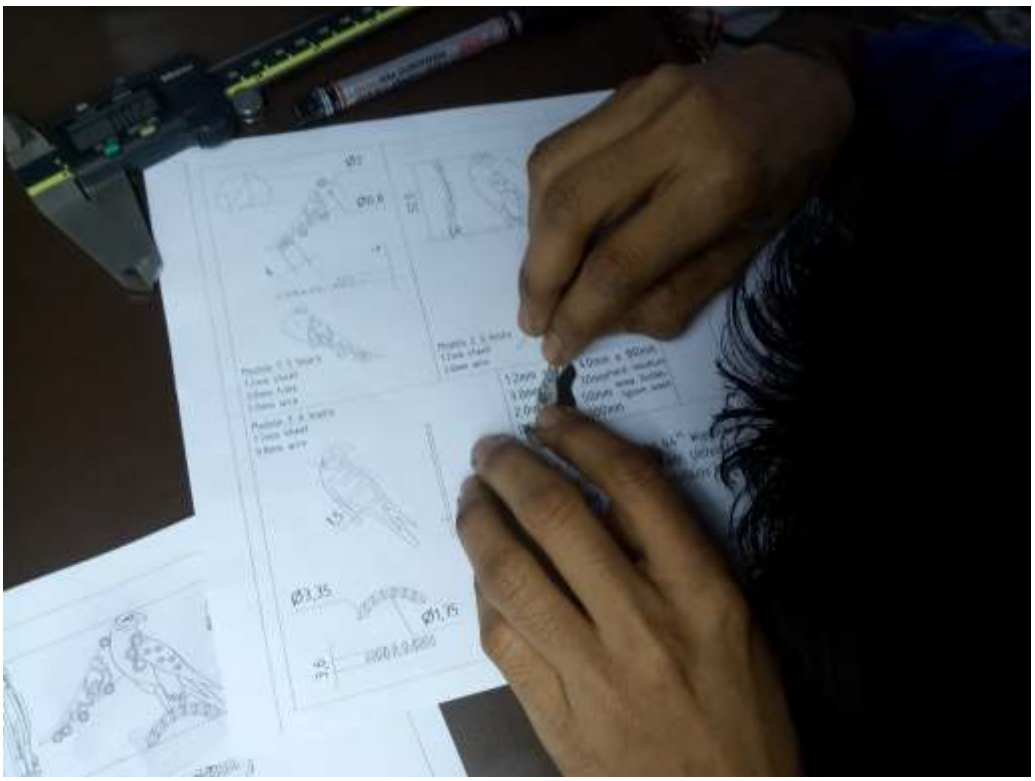
Put the pieces together to be soldered correctly. Use iron wire when necessary to hold the parts. Sometimes the tweezers can be used to hold two plates. Make the solder balls as explained previously, so that the solder flows well.

Place them exactly on the side where the plates to be welded meet. Always try to find contact points that are easy to sand or places that does not appear that much in the piece.

Soldering tip:

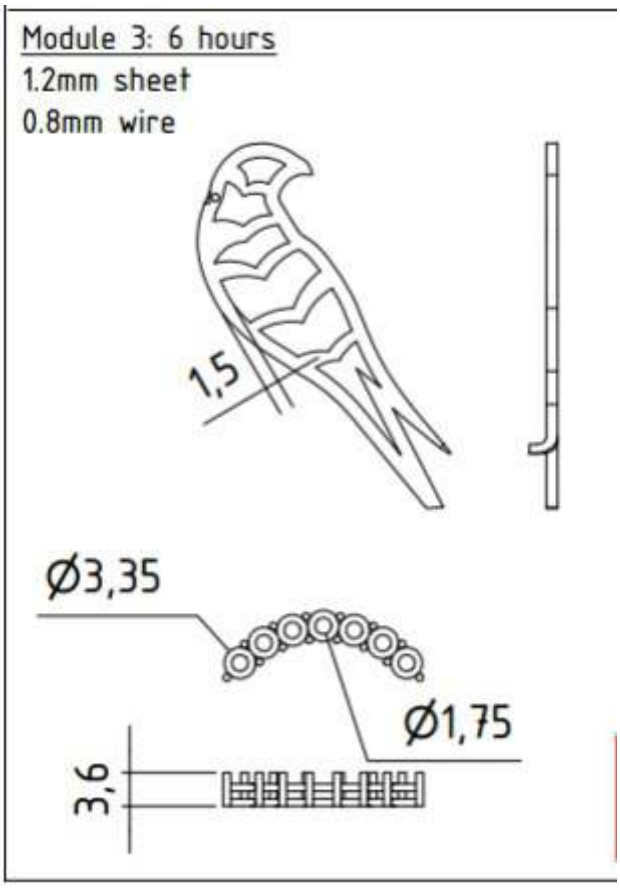
Make the soldering runs using the torch (heating) control. Using skills developed in the process of repetition of soldering training. Knowing where the solder will run (goes) to according to the heat managed by you on the piece with the torch.

Make the joint of all parts using the skills previously described. Checking always the similarity to draw and the measurement. This last one must not be different from the technical drawing.


Ø3,35
Ø1,75

After welding the parts, complete the module cleaning the piece using the acid. Wash it in a clean water. After that brush the piece with pumice stone and teeth brush. Remembering to make it in the same direction in a way to let the piece with a good looking.

Module 3. In the following module the following criteria will be approached:



- Criterion A – Similarity with drawing
- Criterion B – Sawing and Ajour
- Criterion C – Soldering
- Criterion E – Dimensions

In this module a very good sawing work will be required.

Here is one of the **biggest secrets** of WorldSkills in Jewelry: If a piece is well sawn, you will spend less time straightening (fixing), filing and sanding the contours of the sawn piece. Measurements are easier achieve when sawing is done properly.

Being like this, repeat the process of cutting out the drawing, gluing it on the plate, drilling the spaces to be sawn and sawing in 90 degrees to the sheet so that the piece is well sawn.

First saw the inside parts and then saw the outside. This way there will be more plate to hold while sawing the internal cutouts well.

Before sawing by the outside, file the sawn “lines" (metal) internally so that they are smooth and correct, removing sawdust imperfections.

Depois disso serre a peça externamente, sempre prestando atenção no angulo da saw bled em relação a chapa. Deve ser 90 graus.

Logo após lime externamente de maneira a deixar os contornos da peça smooth.

Right after that, make the sawing of the external part, always paying attention to the angle of the saw bled in relation to the plate. It should be 90 degrees.

File externally to leave the contours of the piece smooth.

Surface finish it on a flat surface with 300, 600, and 800 sandpaper. Always remember to leave the finishing in only one direction

Soon after this we go to the production of collets. To do this, measure in the technical drawing the total diameter of the collet hoops. With the total diameter, do the math to know the diameter of the inside of the hoop. Doing this you will have the metrics about which to use as a inner die. Subtract total diameter by 2x wire thickness.

Hold the die together with the wire in the small bench vice and wrap the wire on the die. Take as many turns as necessary to produce the right number of hoops according to the drawing.

Check if the ring sizes are correct.

Saw the wire that was on the die to make the hoops. After making the hoops make the soldering closing the gap.

Important tip:

When the technical drawing instructs you to make collets at a certain curvature, rather than welding the rings together, saw a copper plate in the curvature as shown in the

technical drawing. This way you will have the right angle of curvature.

Knowing this, use the cut-out copper plate at the correct angle and place one ring next to the other to be able to weld them.

Use only the minimum necessary solder flux between the rings so that when you pass fire they will not move when the flux gets hot. To weld them between one another, make solder balls again before placing the soldering pieces between the rings. Use small pieces of soldering, just what is needed for welding, without over soldering the place.

Use the heat control developed in your exercises to make the soldering work correctly between the rings.

Once soldered the lower and upper ring group is time to place the prongs.

Collet construction tip:

When making collets to put the prongs, make small ‘U's of wire and solder it at the ends of the collet. Solder it on lower ring assembly.

Calculate the space between the lower to upper ring assembly and use a spacer. The 'spacer' can be a drill, small pieces of brick or anything else that at the moment of the piece construction, makes the right space between them and let it in the correct size.

Solder the upper ring assembly on these 'U's soldered to the lower rings. After soldering, fit the other 'U's and finish welding the prongs. Always use soldering balls. Have the control over the torch. Understand how the soldering behaves.

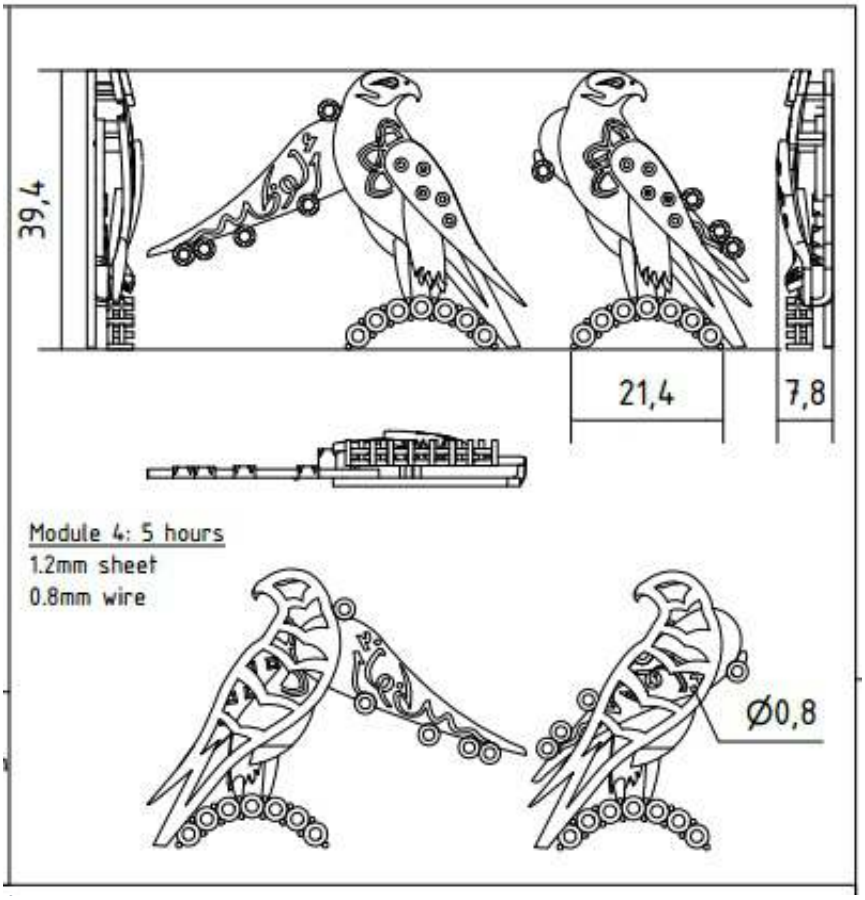
After all 'U’s are soldered, mark the correct height and saw it. In this way the prongs will be slightly bigger than required in the technical drawing.

File and sand it making the finishing. Check the measurements shown in the technical drawing. If your piece is a bit bigger, make a small sanding until the measurement is exactly as requested in the technical drawing

After that, pass the pieces through acid, wash it in running water and brush it with pumice stone, always brushing the pieces in one direction, as previously mentioned.

For module 4 and assembly:

Module 4 of the test projects are almost always the assembling of all other modules.



In the module above the developed criteria will be:

- Criterion A – Similarity with drawing
- Criterion B – Sawing and Ajour
- Criterion C – Soldering
- Criterion D – Surface finishing
- Criterion E – Dimensions
- Criterion F – Piece finished on time

Golden tip:

It is very important that all measurements requested in the technical drawing are made correct in the piece. In all modules! Since the first one. In this way when you fit all the pieces together for assembling, the measurements of module 4 will be correct.

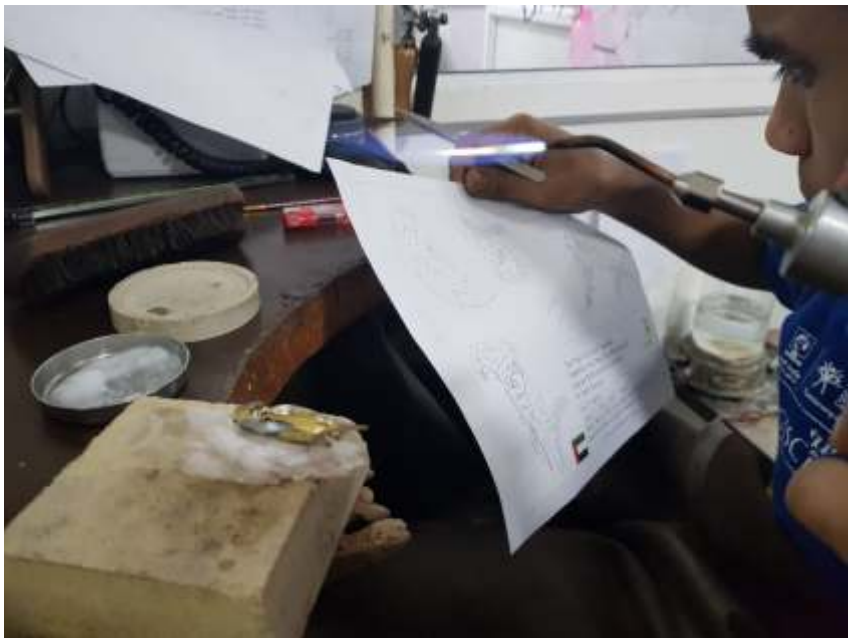
Before welding the parts properly, open the cutout on module 2.

To do this cut the part of the technical drawing to be sawn and glue it to the plate of module 2.

Make the correct drilling, using the drill in 90 degrees and saw it exactly as the technical drawing demonstrates.

Remove the paper using the torch, burning the paper, and then pass the piece in acid to clean it.

To begin the assembling process start by welding module 2 with the module 3 bezel. Make the perfect fit and check the similarity to the drawing.



Properly solder the bezel from module 3 on module 2. If necessary, use iron wire to be able to hold both parts in place. Always remember to make solder balls to solder the parts.

After these parts are soldered, put them in the acid to get clean and wash it with running water.

Once the parts are soldered it is time to join module 1 to the piece. Note that in the plate of module 2 there is a hole and in module 1 there is a tube soldered in the plate and there is a hole in the middle of that tube that pass through the plate. These holes will be used to assemble this part. The eagle's wing has a movement. So fit the wing (module 1) in a way these the holes meet.

Pass a very thin wire and make the soldering of the upper end on the plate of module 2. after soldering, file off excess solder and sand it with the corrects sandpapers to give a perfect finishing. (Same direction)

Pass the piece in the acid to clean. Wash with clean running water.

Soldering the collets is the last thing to do as it is the most delicate welding of the entire piece.

Paying close attention to the similarity to the drawing, position the collets as it is shown in the technical drawing. Note the angles, the contact parts between the two pieces. When they are exactly positioned as shown in the drawing, pass the flux and solder it using the soldering ball technique. Be careful to not melt the prongs.

Always place the soldering where it can be sanded or where it will not appear in the overall look of the piece. Remember of the good looking piece tip.

After all parts are perfectly soldered, the movement of the wing is working well, we go to the piece burning process. This process is to make the color of the piece become beautiful, making the yellow an attractive shade.

To do this, pass the fire in the whole piece until it gets dark. When it happen, throw the piece into the acid. Wait it to clean up. Wash the piece and repeat the process 3 more

times. The more this process is made, the more beautiful will be the final color of the piece.

Right after the burning process brush the entire piece with pumice stone in one direction.

Wash it under running water and let it dry.

Deliver the completed piece and feel the sense of the achievement!!!

Important:

During the production process, using the stopwatch, save at least 15 minutes before finish complete time to make the piece burning process and/or make small final adjustments.

Criterion G – The Creative Element.

Criterion G is an additional criteria created for jewellery competitions from WorldSkills Kazan 2019.

The creative module is not a measurement of how well the competitor can draw but how well he/she can communicate an idea through both drawings and notes. The creative element might be broken up over 3 days.

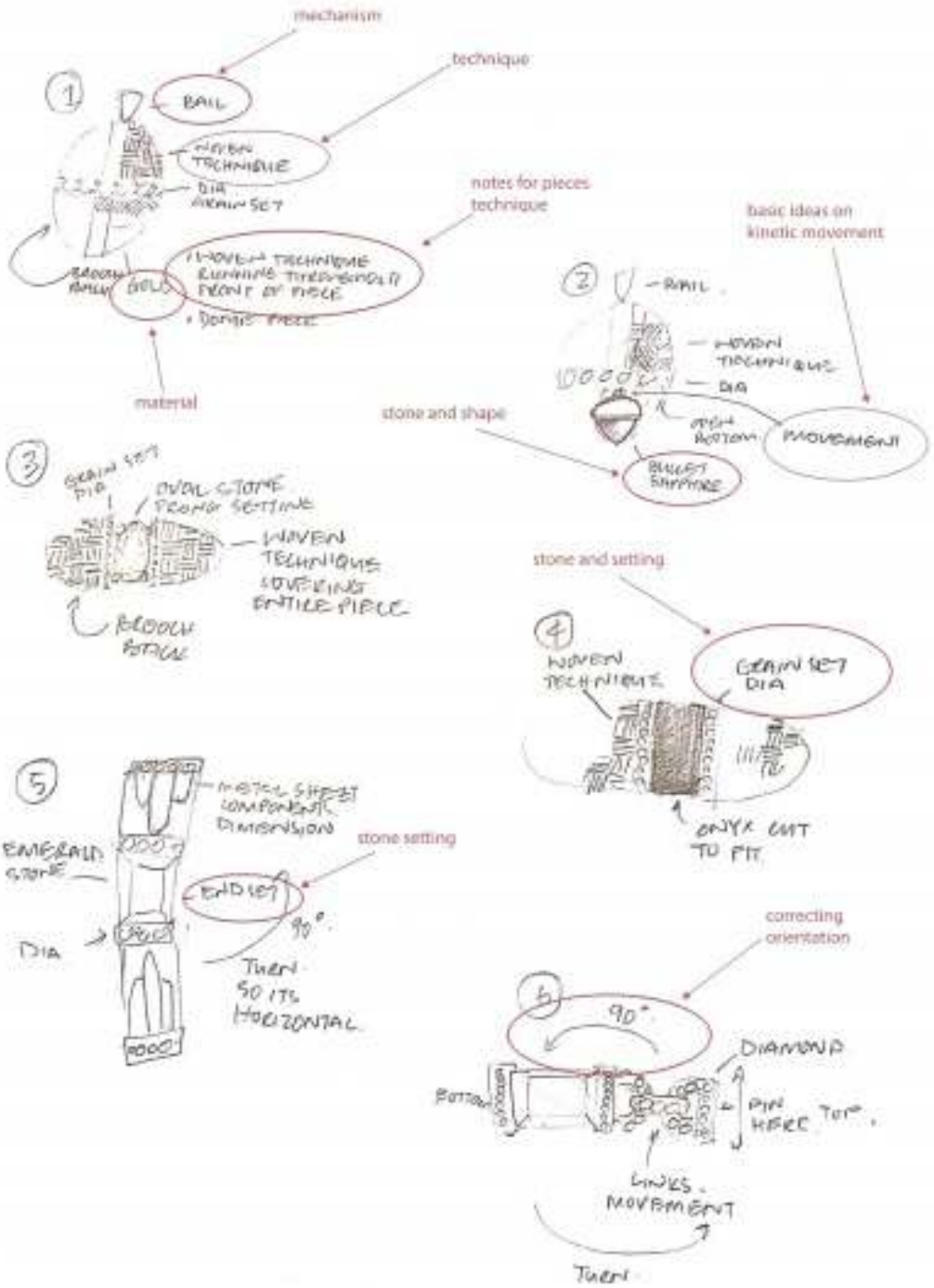
The training of this criteria should be based on drawing as a jeweler. Get used to understand inspiration and concept a piece design. To understand what the client wants and translate it into a design to compose with the technical drawing received.

Every test project used during the training process should have one additional module of creativity drawing, concept related to that test project design.

In the competition the Creative Brief will be released to all participants on C-2 and you be allowed to work with your expert to discuss and frame ideas that meet the competitions brief prior to the competitions starting.

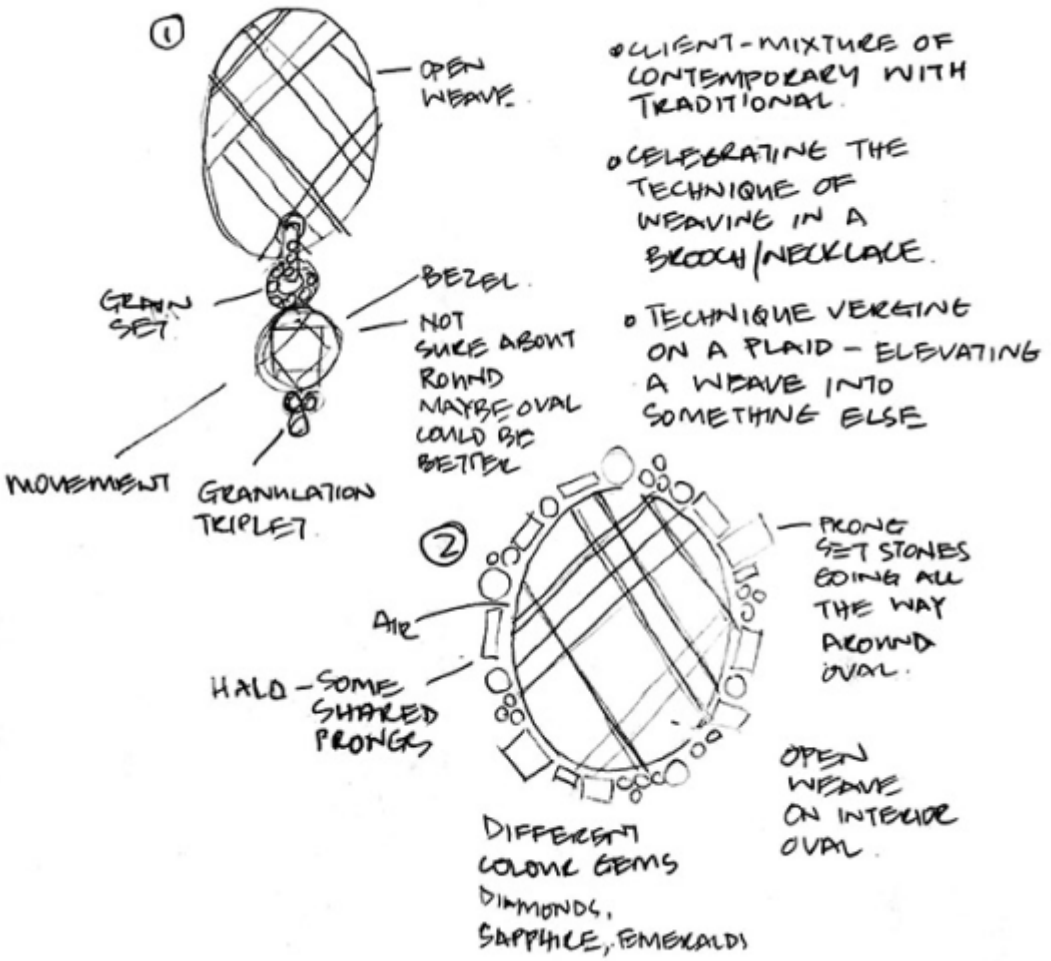
The creative element will be something developed by the competitor at the same time of the competition work. It is something developed from one inspiration and some changes made during the days of competition until reach in a final design to be made to compose one module's design.

As it is show bellow:



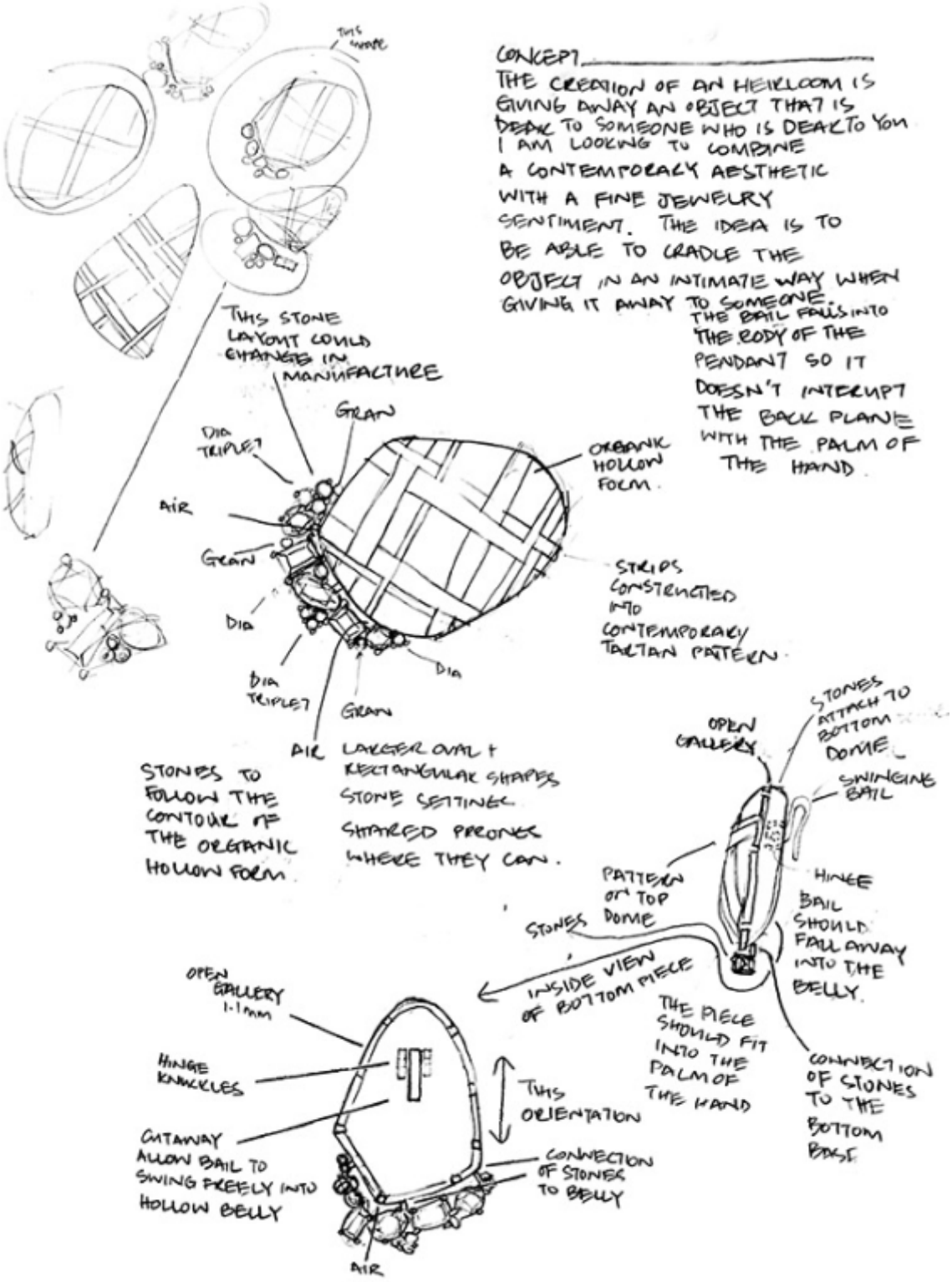
C1- Form generation / Six sketches with call outs and description

As it is show bellow:



C2- Exploration / Two sketches with more information or details of design, call outs, description and different views

As it is show bellow:



C3- Final design with all information and concept writing

This manual is a basic training roadmap for WordSkills. It is a training route for how it should be developed and the important skills to be developed.

But a champion is not forged by reading a manual. A champion is formed when the one decides to become a champion!

If you that are reading this manual and practicing the techniques described here want the gold medal more than anything else, this medal in the WorldSkills is just a matter of time and a lot of training.

Never let anything stops you and never doubt that it is possible!!!

We can become what we want to be!