

# 2-PART PLASTER MOLD-MAKING

The premise of this project is to create a two piece mold from a found-object original.

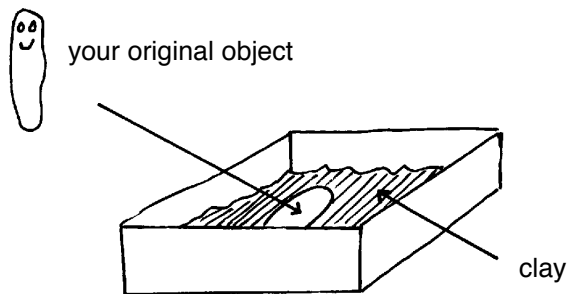
The final mold pieces are then secured together to enable casting of a final object. The mold can be re-used over and over to create multiple final objects. This technique is suitable for learning the process of mold-making and casting, and the same principles can be used to create multi-part molds from more complex original objects.

## Materials and equipment:

- An original object to be duplicated
- Modeling clay
- Plaster of Paris
- Petroleum jelly or other type of release agent
- A container for pouring your mold into (such as a cardboard box; another option is adjustable wooden T-bars with clamp closures)
- A clean bucket for mixing the plaster, preferably a plastic bucket if possible
- A large wooden board used as a working surface
- Newspaper or plastic to keep work area clean

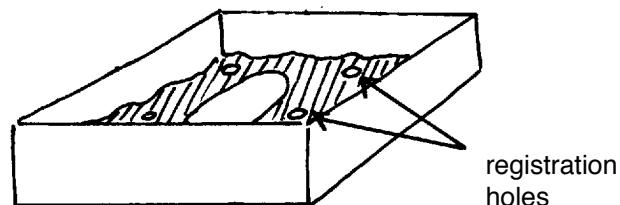
**Step 1 - Choosing an original:** For first time mold makers, choose an object with limited detail and few pronounced appenditures. Once you have worked with the process of mold-making and feel comfortable, you can then move on to more complex projects.

**Step 2 - Preparing Your Object for Making One Side of the Mold:** Select a container for pouring your mold. The container should allow roughly 2" of space a round all sides of the original object. Fill the container with clay to a depth that will allow you to imbed your original to the half-way point with



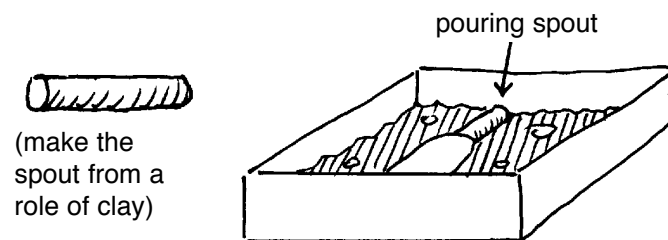
approximately one-inch of clay beneath the object. Smooth out the surface of the clay to a flat, even finish. If you need to take a break, cover the container with a plastic bag so the clay won't dry out. (If you want to leave the project for more than a few hours, gently cover the clay with a damp paper towel before wrapping it in plastic.)

**Step 3 - Registration Holes:** It is important to create a 'map' so that you can fit your two finished mold halves together. To do this you must make registration holes. This is done by making four



1/2-inch circular indentations in each corner of the clay surface. You can use the tip of a finger to do this. The indentations will allow plaster to flow into them, creating a raised bump on each corner of your first mold half. When you pour the second half of the mold, you will be left with a reverse 'hole' which matches each bump.

**Step 4 - Create a Pouring Spout:** You must also create a 'spout' which will enable you to pour plaster or another suitable casting material into your final mold, in order to produce your final object. The spout should be placed at the bottom of your object so that it is not noticeable on the final piece. The spout should be wide enough to allow you to pour easily. The easiest



way to create a spout is to place a length of rolled clay between your object and the wall of the container.

**Step 5 - Apply a Release Agent:** The next step in the process is to apply a release agent to your object and container. This is important because it will enable you to release the object from the plaster mold — if

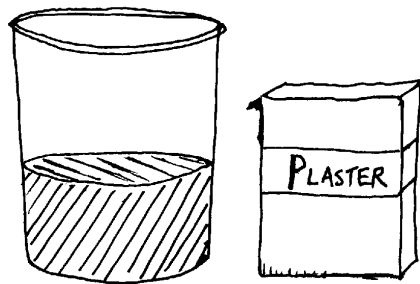
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you forget to do this your object and mold will be ruined. A typical, economical release agent is petroleum jelly. You can also use commercial release agents specifically made for the purpose, usually available in either liquid or spray. Disperse the release agent liberally across the surface of the original and the sides of the container. You do not have to coat the clay because it will not adhere to the plaster.

**Step 6 - Double-Check that you have adequately prepared:** You are now ready to mix plaster for the first half of your mold. Once you mix your plaster, you must be ready to pour immediately. Before doing so, double-check that you have properly prepared. It is helpful to try to visualize the reverse of how your object looks in the clay base. If you notice any problem areas, it is best to fix them before proceeding. As you become more comfortable with mold-making, you will begin to recognize problem areas. Be prepared to learn by trial and error.

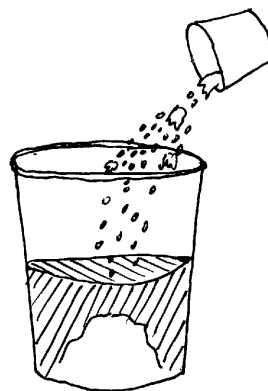
## Step 7 - Mixing and Pouring the Plaster:

**Preparation:** Begin with a clean bucket. The bucket should be deep enough to allow you to mix enough plaster to fill the mold to at least a one-inch depth above the original. Fill the bucket so that the water level is high enough that it approximates two-thirds the amount of plaster you will need. Ensure there is enough space in the bucket to



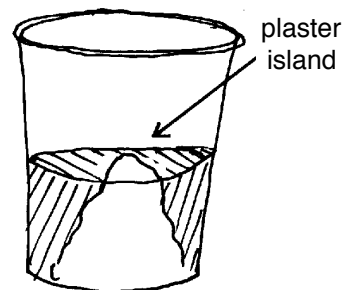
accommodate the full amount of mixed plaster. Water should be room temperature, if it is too cold or too hot it will impede the curing process and weaken the strength of the final mold. You will also need a small container for transferring the dry plaster from its package to the bucket.

**Mixing:** Mix plaster using the 'Island Method'. This method is one of the easiest ways to mix plaster based products. (You can also follow the plaster manufacturers guidelines, which usually follow a formula of: weight of plaster / volume of water.) For the Island method, gently sift the plaster into the centre



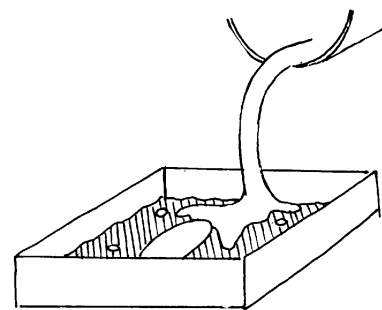
of the bucket of water. Let the plaster settle on its own. Keep sifting until the plaster forms an 'island' about the size of a quarter above the water surface. You will notice that as the island starts to form, the edges slowly disperse into the water. Once the island remains above the surface

without dispersion you have achieved the right amount of plaster to water. At this point give the bucket a good bang on the table to release any trapped air bubbles. Let the plaster sit for two to five minutes. If mixing a large batch of plaster, let it sit longer. The sitting time will allow the water to absorb the plaster



molecules, and this is an important step in improving the final strength of the product. After sitting, give the bucket another bang to further release any air. Now you can begin mixing, using your hand or a mixing implement. (For mixing large batches, attachments are available for hand drills.) Break up any lumps in the plaster and mix using a figure-eight motion. Don't mix too vigorously as this will create air bubbles. Mix to the consistency of thick cream, still thin enough that you can pour it evenly into the mold. Mixing will take several minutes. Bear in mind that once the plaster begins to set, it will become difficult to pour. Keep this in mind if you are pouring larger size molds or multiple molds, as you may want to begin pouring when the plaster is more fluid.

**Pouring:** When the plaster is the consistency of thick cream, you are ready to pour it into the mold. Pour the plaster into a corner



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so that it will find its own way around the object. Pour until the plaster is at least a one-inch thickness above the object. Once poured, bang the surface of the table to dislodge any air bubbles. Then allow the plaster to set. Setting time will depend on the size of your mold. Wait at least an hour on smaller molds, or longer for larger molds. You will notice that the surface of the plaster heats up and then becomes cool again. This is a natural occurrence which is part of the curing process. Once the plaster is firm and cool to the touch it is properly cured and you are ready to release the original. If you notice excessive water on the surface of the plaster during the curing process it is likely because the plaster was improperly mixed. The plaster may still set, but it may not be as strong as it should be.

**Step 8 - Prepare for Part two of the mold:** Once your plaster mold has set, flip the container over and gently peel away the clay, leaving the clay of the pouring spout in place. If you have used a container with a bottom, cut away the bottom to expose the clay and then peel it away. (Store the clay in a plastic bag as you can re-use it for future projects.) You will now be able to see the original imbedded in the plaster. You will also notice the

four plaster registration nodules. It's not a bad idea to take the time to release the original from the mold at this point. To do so,

gently rock the original to loosen it from the mold cavity. Work slowly, gentle scraping around the edges of the object to help break the bond between the object and mold. Use wooden tools as they are soft and will not damage the mold as easily. Once the object begins to give it usually will come out quite quickly, so be prepared for this as you may pull too hard and damage the mold. Be gentle but firm. The object should release providing there are no undercuts and the release agent was properly applied. If you damage the mold you can usually fix it with clay or plaster fill.

**Step 9 - Preparing for Part two of the two-part mold:** Place the original back into the mold. Continue preparing the mold by applying a release agent to the

container walls, the plaster mold, and the original object — following STEPS 5 and 6.

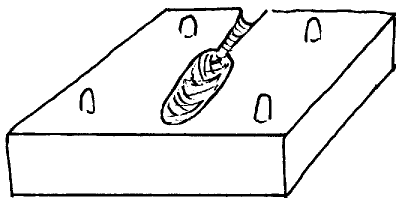
**Step 10 - Mixing and Pouring the second part of the mold:** Repeat the procedures in STEP 7.

**Step 11 - Releasing the original:** Once the second half of your mold is completely set, you are ready to release the original. Begin by releasing the entire mold from its container or box, then gently insert a knife or wooden tool between the two parts of the mold to separate the pieces. This step is a little tricky as the original may be quite tightly imbedded and you do not want to damage the mold. Again, work slowly. Once the two halves are separated, the original will still be imbedded in one half. Remove it using the method described in STEP 8.

**Step 12 - Cleaning the mold:** Thoroughly clean both halves of the mold, using cold water and a soft brush. Use the brush to remove any excess clay but be careful not to damage the details in the surface. Next apply a solution of green dish soap and water (there are commercially available 'mold soaps' specifically designed for the purpose). This will help seal the mold and allow it to release from each cast more easily. Pat the mold dry and then set it aside to dry thoroughly. (Let the soap solution dry in the mold, removing excessive deposits prior to casting.) Once the mold is dry, you can touch up any imperfections with plaster fill or clay. The better the mold is cleaned and prepared, the easier it will be to achieve consistent final casts. Take enough time cleaning to ensure successful casting.

**Step 13 - Pouring a Plaster Cast:** Once the mold pieces are prepared, apply a release agent to all surfaces. Match the mold pieces together by matching the registration nodules to their correct hollow. Secure the two parts together firmly with elastics or other suitable restraints. Set the mold on your work surface so that the hole where the pouring spout is located is at the top. Secure the mold with clay supports if it is at all tipsy. You are now ready to pour your first cast. Prepare the plaster as previously described and pour it into the pouring spot. Bang the table to release any air bubbles. The plaster should fill the mold to where the edge of the objects surface is located. Allow the plaster to set completely and then release using the same

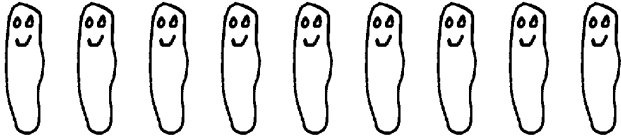
note: registration nodules



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methods described previously. Clean and dry the mold so that you can re-use it if desired, for making multiple casts of your original object.

## NOTES:



### Step 14 - Preparing you final cast for finishing:

You should clean and dry the surface of your final object. When the object is freshly removed from the mold you will notice that the plaster is soft enough to cut away any imperfections, or you can wait until the piece is completely dry and then sand or file it. Plaster objects should be sealed for general protection and to prepare them for painting or finishing. Plaster should be completely dry before sealing.

*Tip: Soft clay is best for imbedding the original. You can soften clay by adding a little water to the bag and kneading it. You can also use the clay to dam up any leakage points in your container.*

*Tip: For easy clean up, use a plastic bucket. Once you are finished pouring you can throw away any excess plaster left in the bucket, then allow the remainder to dry on the bucket surface. Once dry the plaster is easily dislodged by banging the bucket. The plaster will flake off in shards.*



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