

### Trimming Casts: Occlusion 5002 (three types)



1. Removable casts with vestibule
2. Fixed cast with no vestibule
3. Bleaching cast with no palate

### Our Goal

- What do we know?
- Pouring casts
- Trimming casts
- Duplicating a model with an alginate impression
- What do we need to learn?
- Principles for casts
- Dimensions for stone
- Patient differences on cast design
- Cast needs for different situations



### GOAL: Quality Casts

**Two-Stage Pour**




- Use for ALL Casts except bleaching
- Water and air rise during setting so...
- Tray suspended right side up
- Base added after initial set



### Quality Casts REVIEW **First Pour**


- Impression lightly dried
- Stone vibrated into impression starting slowly from one corner
- Impression suspended, retention nodules for second stage added
- Set at least 12-15 minutes







Combination Unit


Vacuum mixing to avoid bubbles





Is your vacuum hose clogged?



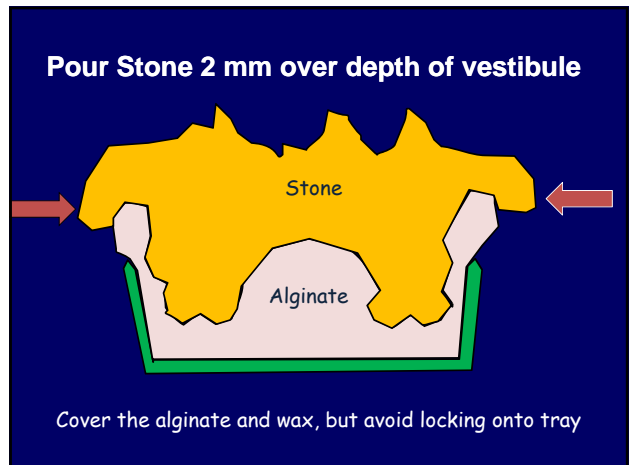
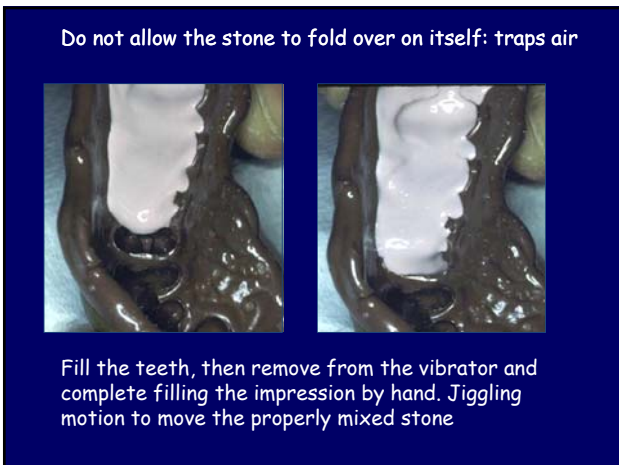
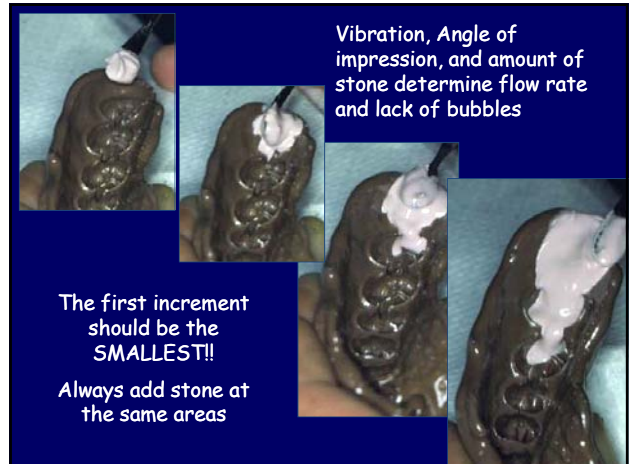
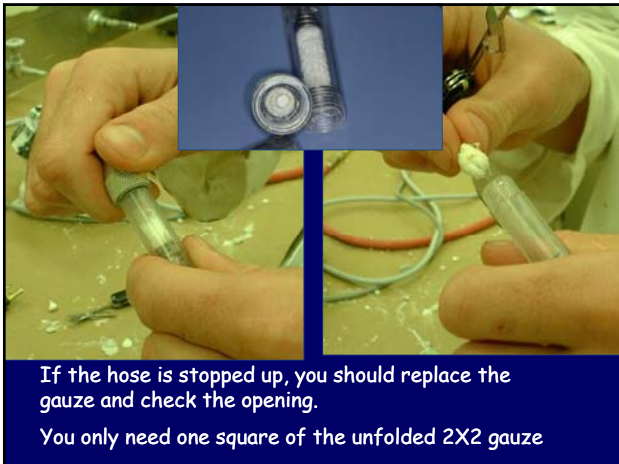


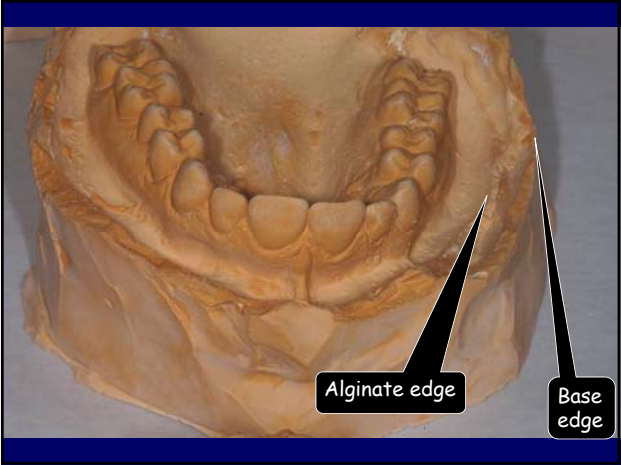






Know what happens when you turn it on without the hose in place, then close the hole



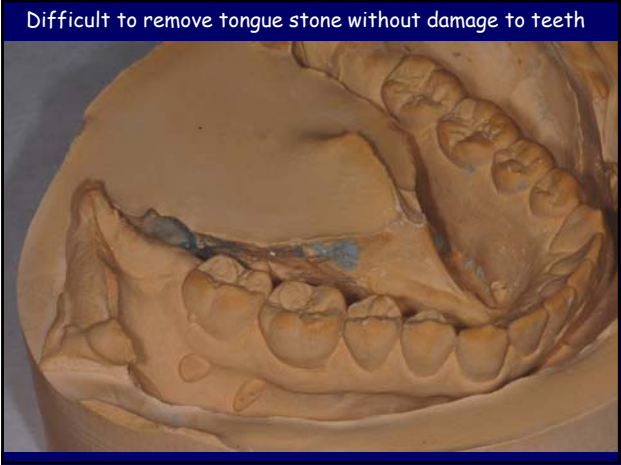
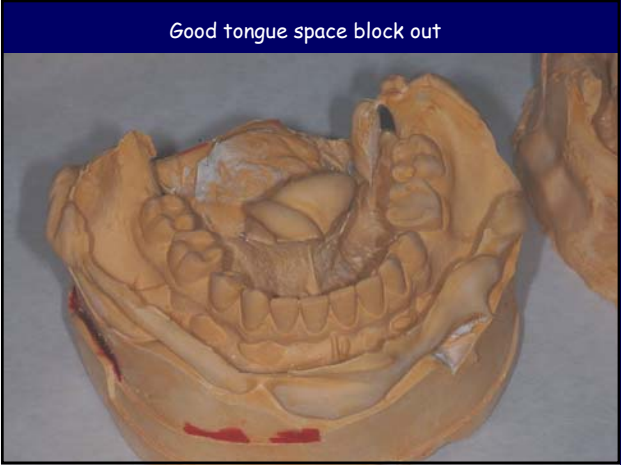


### REVIEW: TONGUE SPACE

The tongue space can be filled with wet paper towels, PlayDoh®, or alginate to form the base area to minimize trimming later

Avoid mix that is...

- too runny: weakens stone
- too thick: does not flow so have air bubbles



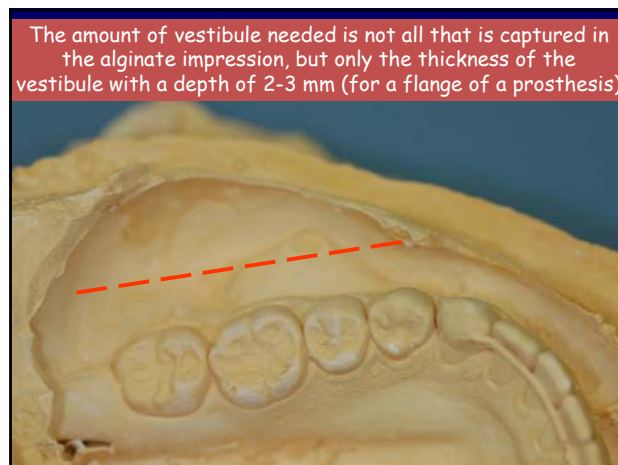
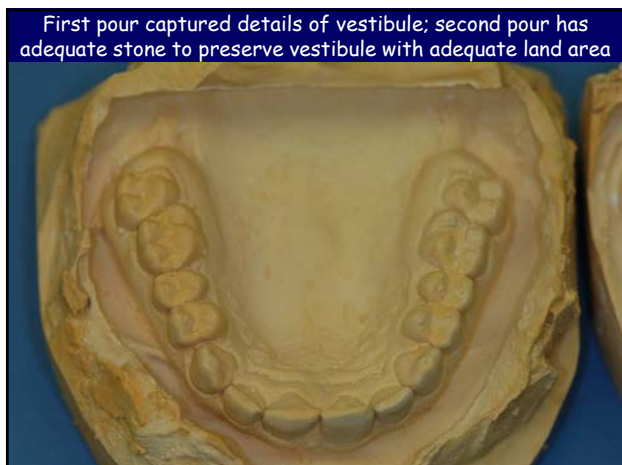
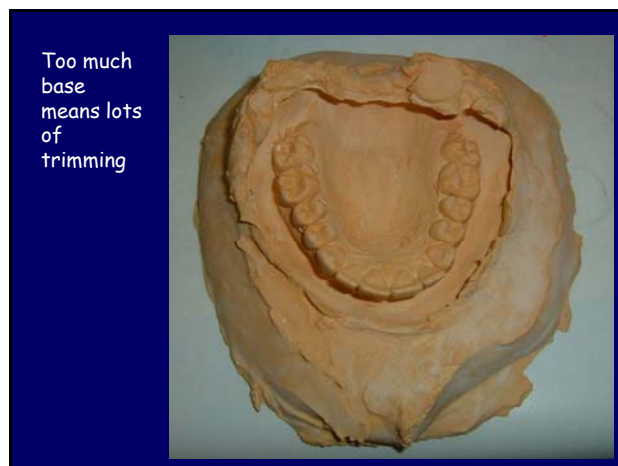


**WET AND WIPE!!!! For additions**

Use flat plastic square or tile to minimize trimming

Flatten nodules parallel to occlusal plane

**Make base larger than initial pour**



Good and bad points?

1. How to "clear" spatula to stack stone
2. Clear tongue space
3. Support heels of mandibular

Principles: Handle parallel to table top, assuming teeth are positioned in the tray correctly

Adequate thickness to create land area which preserves vestibule

What is wrong with these pourings?

**Quality Casts**  
Second Pour

- Cast must be wet.
- Wipe stone into undercut areas on base
- Invert onto patty and shape base
- Set for additional 35-45 minutes

**Quality Casts**  
Second Pour

- Blend two pours together
- Do not lock stone onto tray
- Allow stone to set, but not so long that alginate hardens

**Quality Casts**  
Second Pour

- Remove from alginate within one hour
- Remove stone that is locking the tray first, using wooden handle chisel/knife
- Remember which way the teeth point!

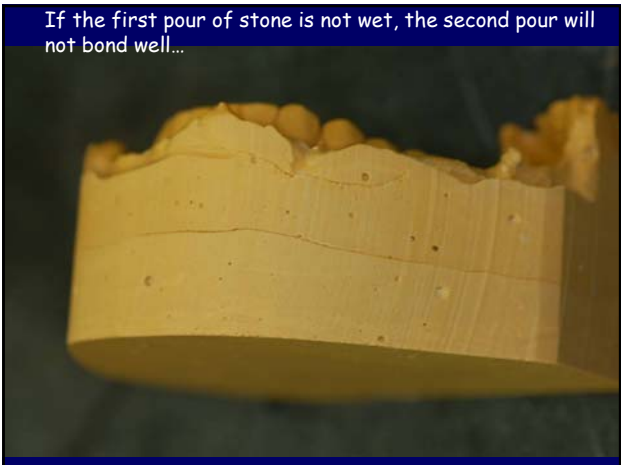
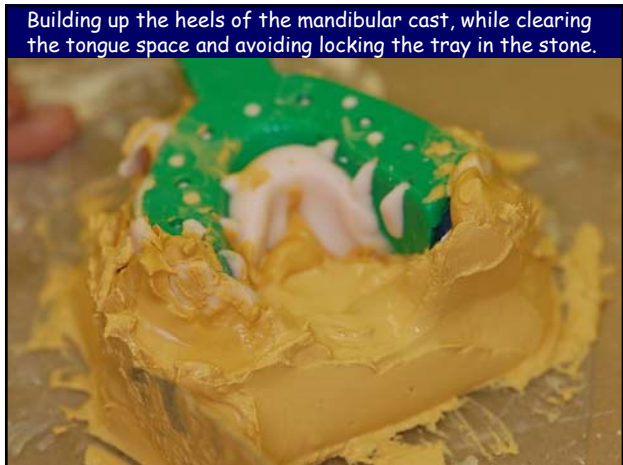
### Quality Casts

Second Pour


- Remove from alginate within one hour
- **Remove stone that is locking the tray first**
- Remember which way the teeth point!



No Land Area



So when trimming, the layers separate



When dry, can superglue together if a good fit; however, when separate later, chance they may again debond

Best to avoid rather than have to correct; repour base


Avoid separate of two pours by always having "wet" set stone for second mix, and good consistency of second mix (by hand)




### Quality Casts

#### Trimming The Cast

- Never trim dry on standard wheel trimmer
- Trim with proper contours
- Watch base thickness
- Clean off all nodules
- Fill in all critical voids



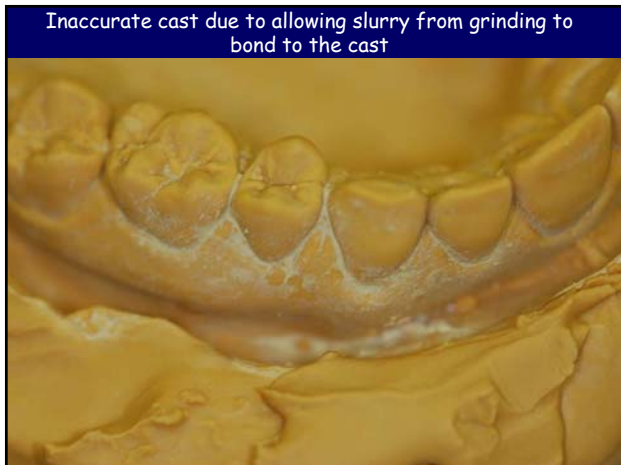
Not What We Want

### Quality Casts

#### Trimming The Cast

- Trim base parallel to occlusal plane
- Trim land areas as required for specific cast use
- Watch your fingers
- Watch the tooth surfaces

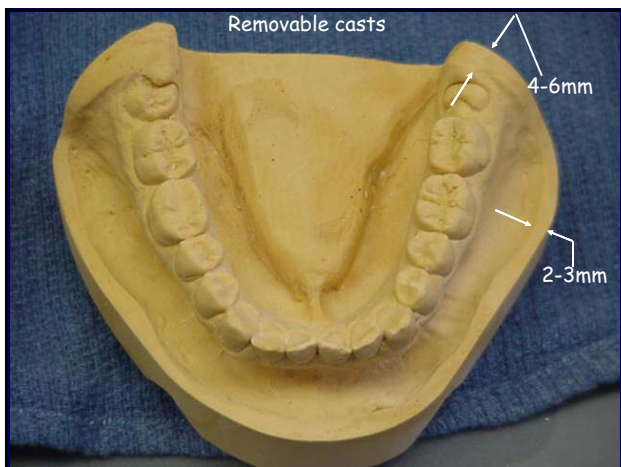
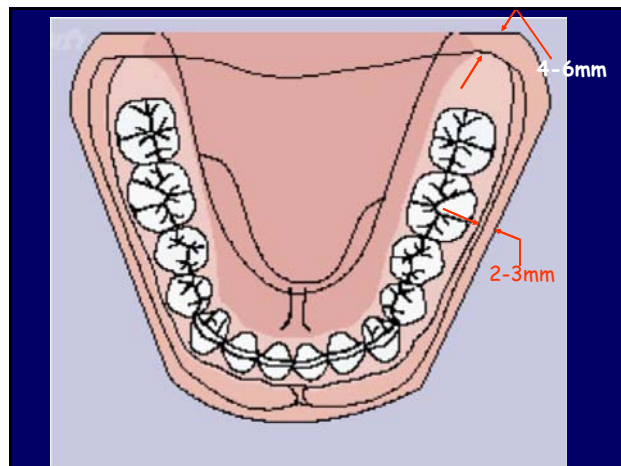




### Quality Casts

Trimming/Storage

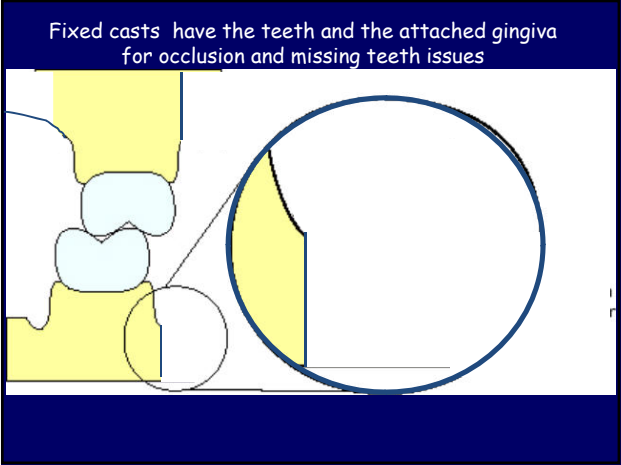
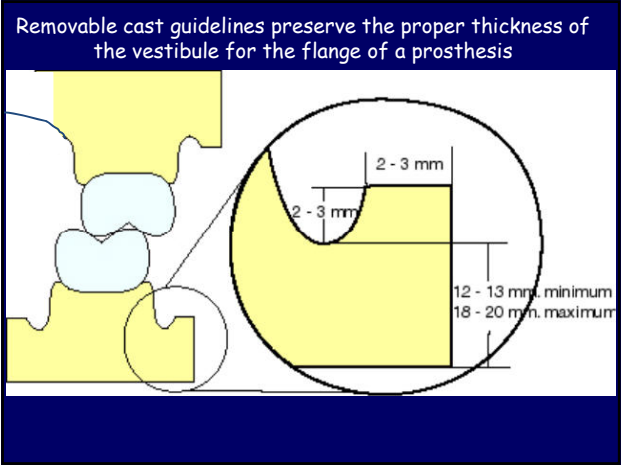
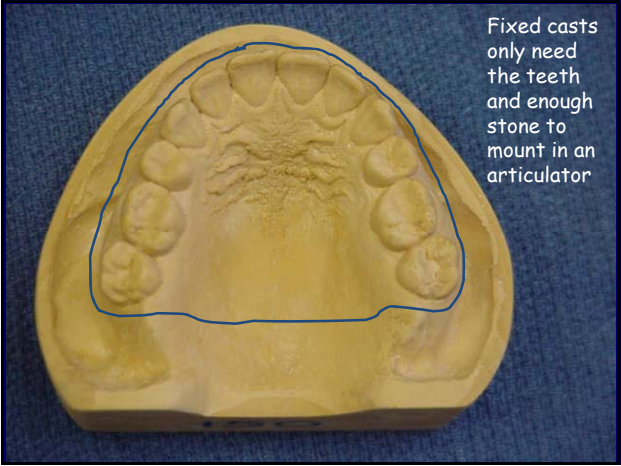
- Trimming with burs best when dry
- Trimming with knife or instrument best when wet
- Never ship or store damp

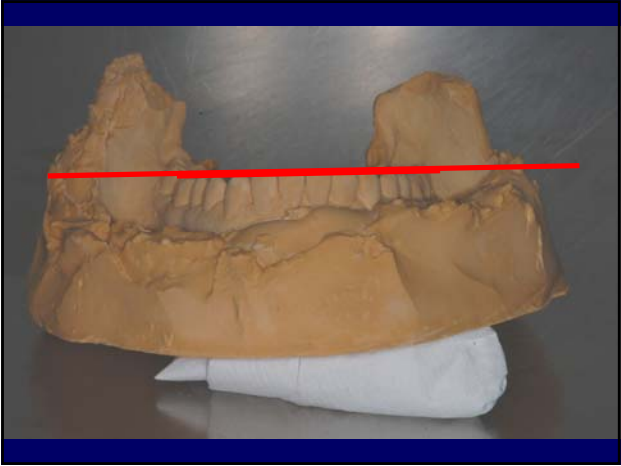
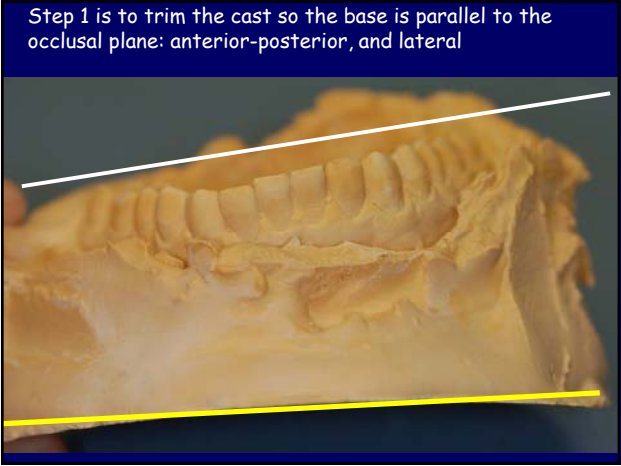
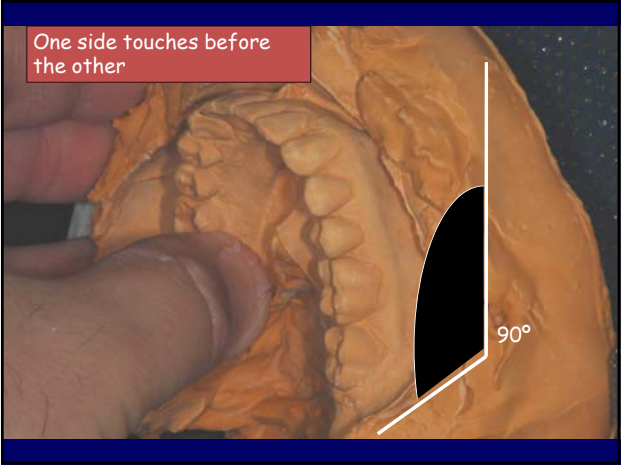


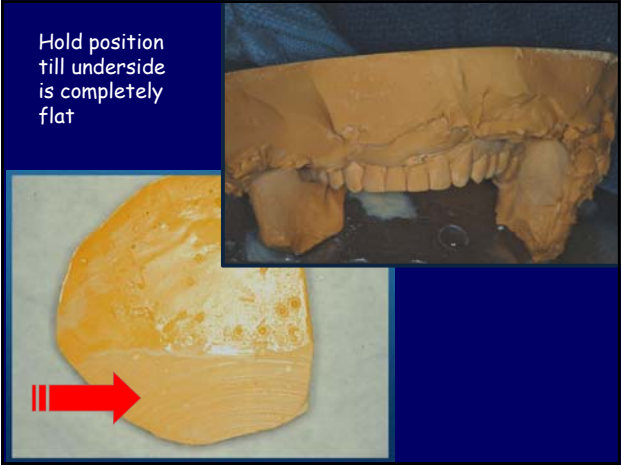
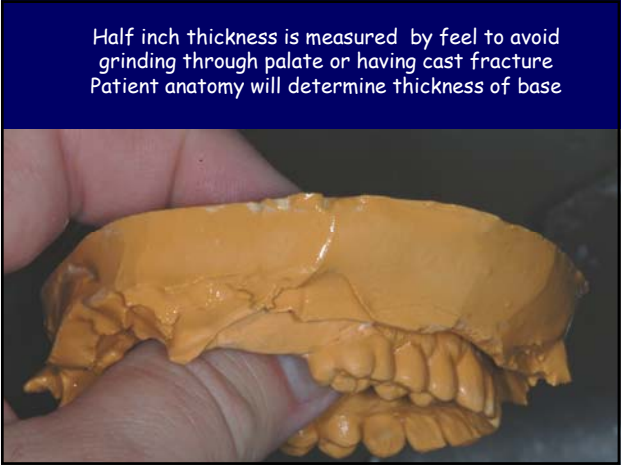
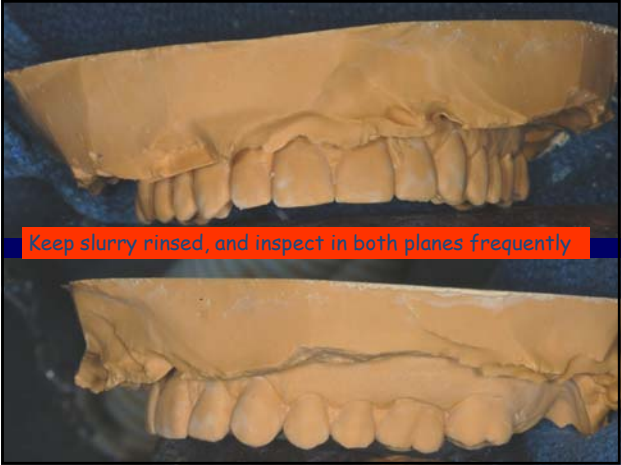
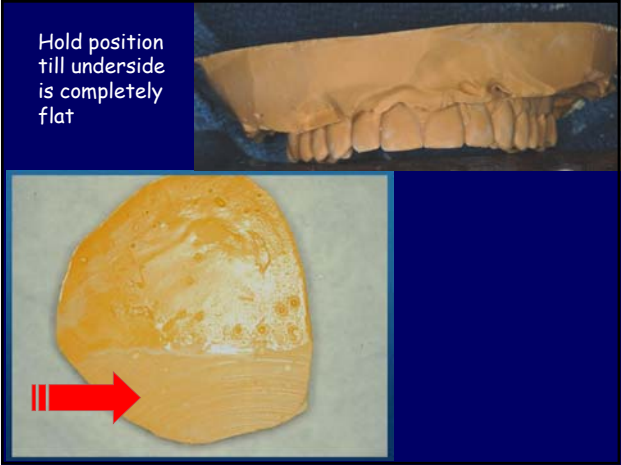
### Fixed & Removable Casts

<p><b>“Removable Cast”</b></p> <ul style="list-style-type: none"> <li>• Teeth focus</li> <li>• Attached and unattached Tissue focus</li> <li>• Vestibule width at 2-3mm</li> <li>• Land area to strengthen cast at vestibule</li> <li>• Hamular notches</li> <li>• Retromolar pad</li> <li>• Mounted to remove</li> </ul>	<p><b>“Fixed Casts”</b></p> <ul style="list-style-type: none"> <li>• Teeth focus</li> <li>• Attached Gingiva</li> <li>• No Vestibule</li> <li>• Trimmed to Terminal tooth</li> <li>• Edges beveled</li> <li>• Mounted so as not to be removed</li> </ul>
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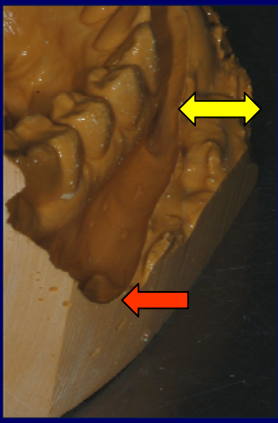




First get bulk reduced

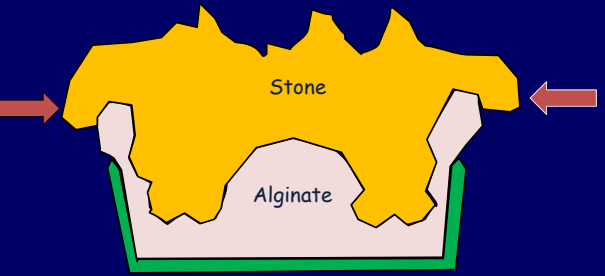
Then lower height down to 2 mm

Then reduce sides to correct dimension and shape



The closer the base pour and first horizontal trim to ideal, the less vertical trim needed to create the proper vestibule

**Pour Stone 2 mm over depth of vestibule**

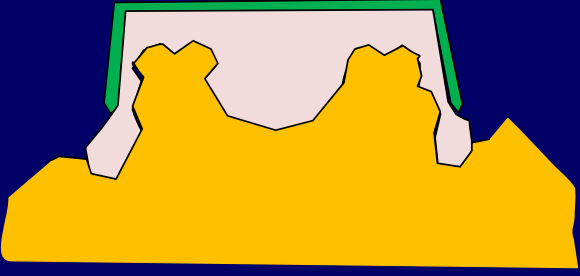


Stone

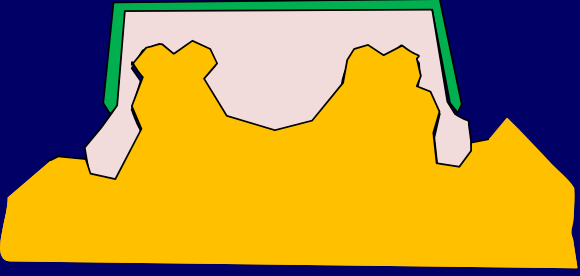
Alginate

Cover the alginate and wax, but avoid locking onto tray


**Base added to be parallel to tray bottom**




**Base added to be parallel to tray bottom**



**Base trimmed flat parallel to occlusal plane, then trim sides**



**First trim from side until land area left of about 2 mm**



Second let dry and trim from occlusal until depth of vestibule left of about 2 mm



Third trim from side until width of land area returns to about 2 mm



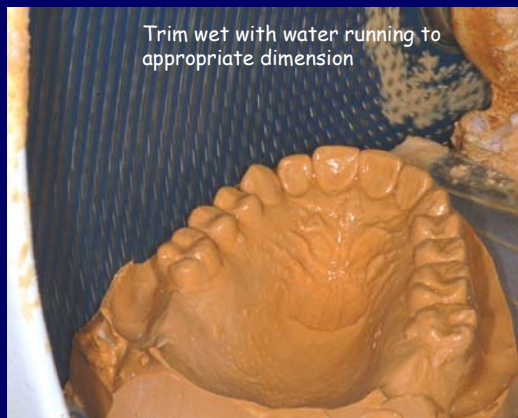
Imagine the 2 by 2 mm dimensions preserving anatomical landmarks for the appropriate cast design

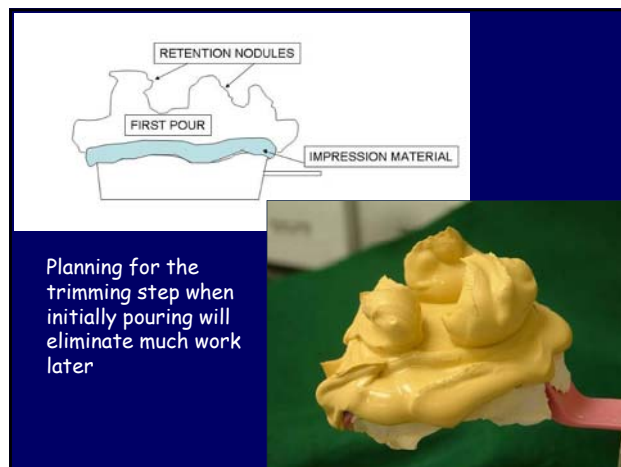
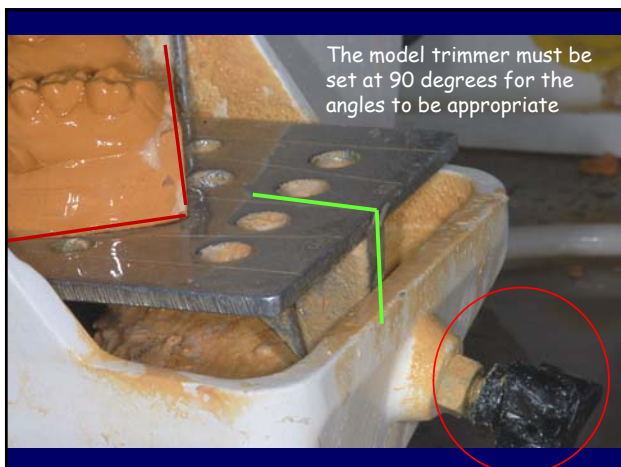
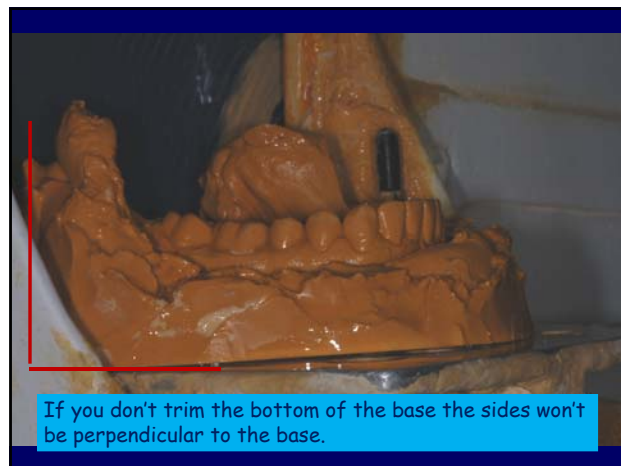
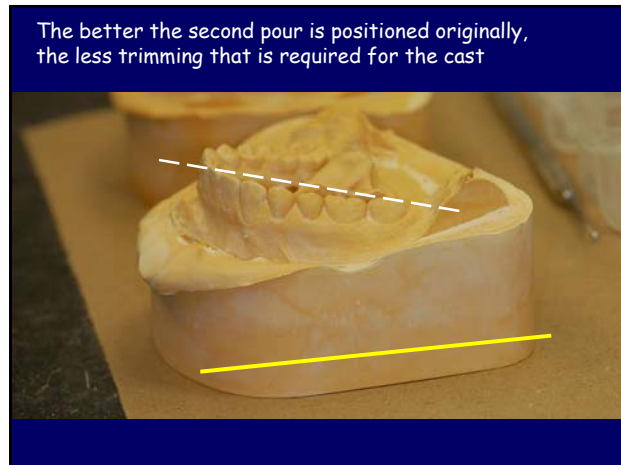
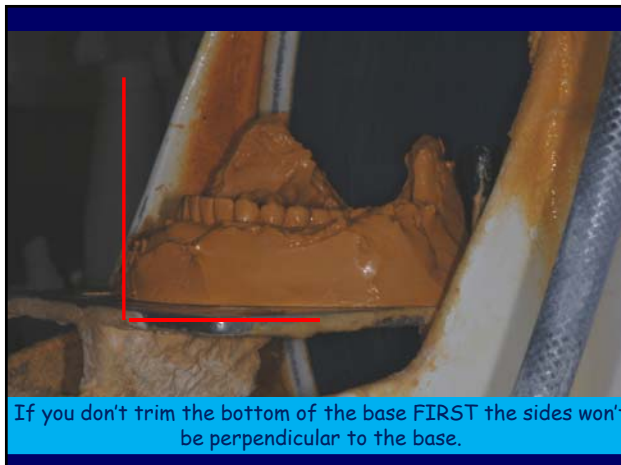


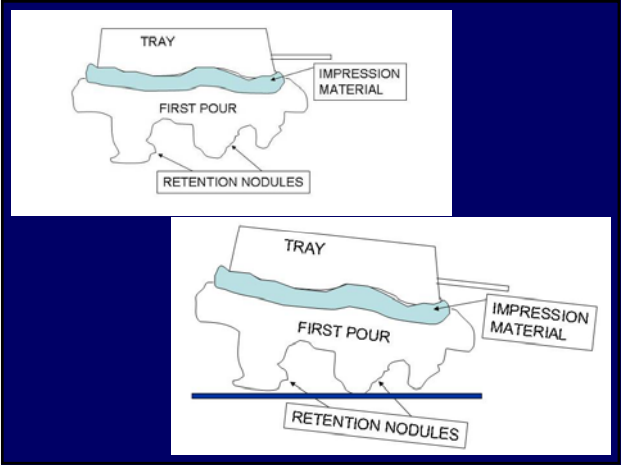
Imagine how much of the impression of the cheek that is in the stone must be removed to obtain a 2X2 vestibule



Trim wet with water running to appropriate dimension

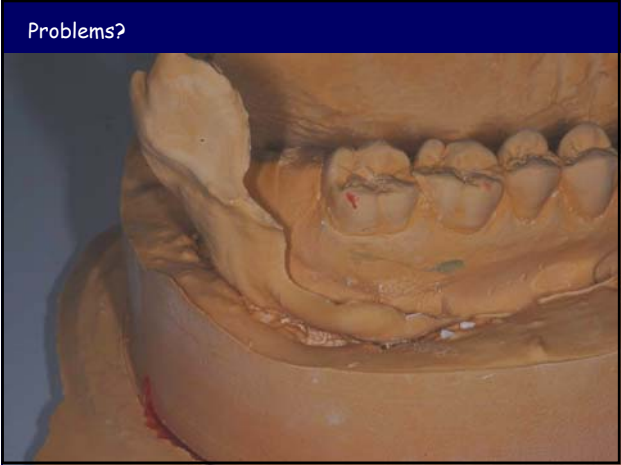
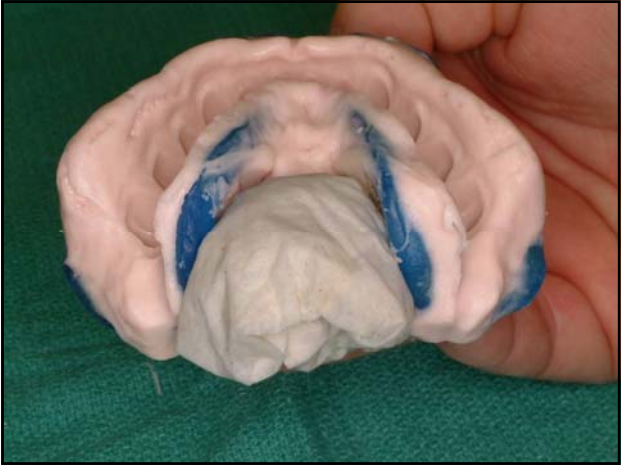
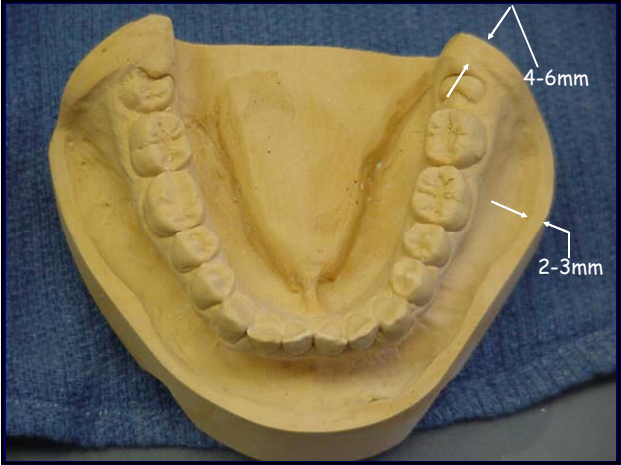


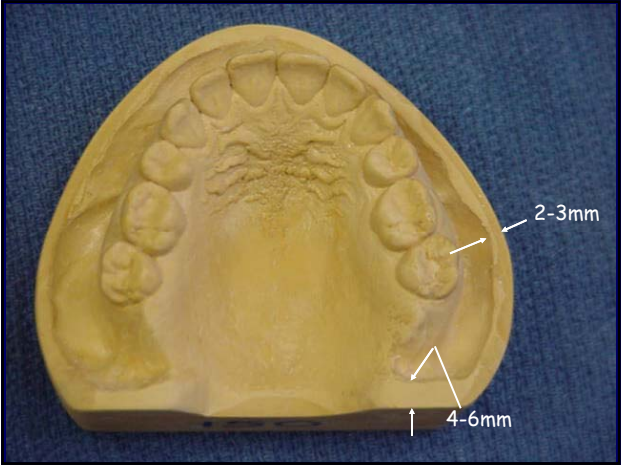
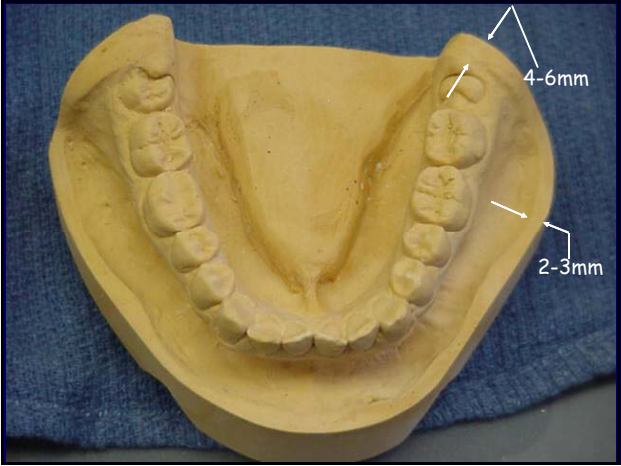













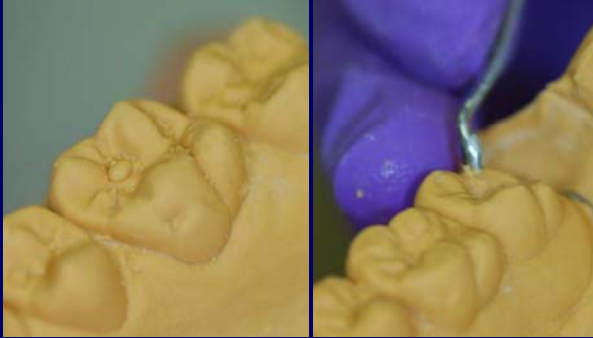


Defects and errors in the cast must be addressed

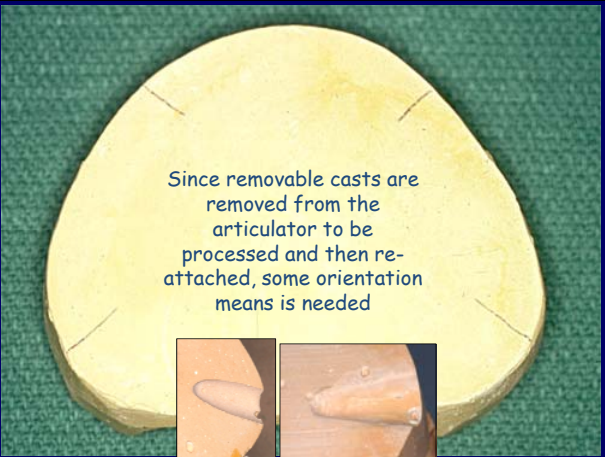


What caused the positive bubbles, and how avoid (2)?  
 What caused the negative bubbles, and how avoid (2)?


Removal of nodules should be very selective, as each place altered is now an inaccurate portion of the cast



Since removable casts are removed from the articulator to be processed and then re-attached, some orientation means is needed



Notches that have no undercuts are used, with vaseline in them as well as vaseline in the center of the cast




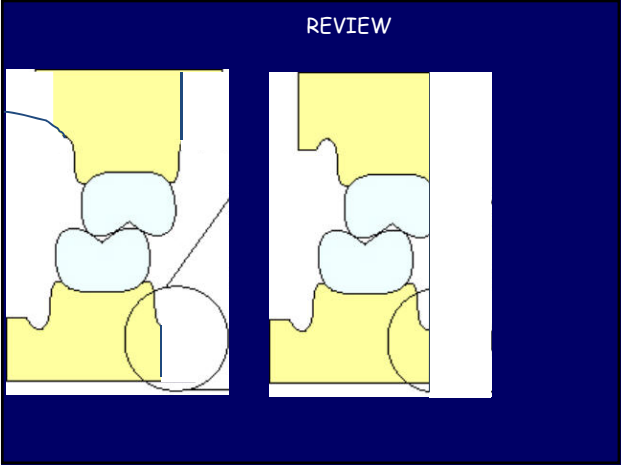
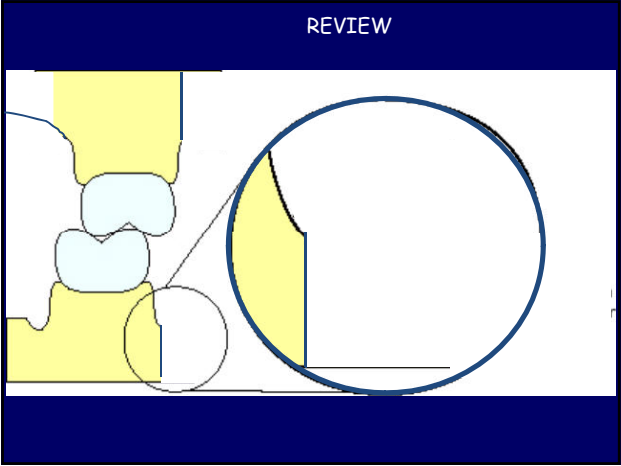
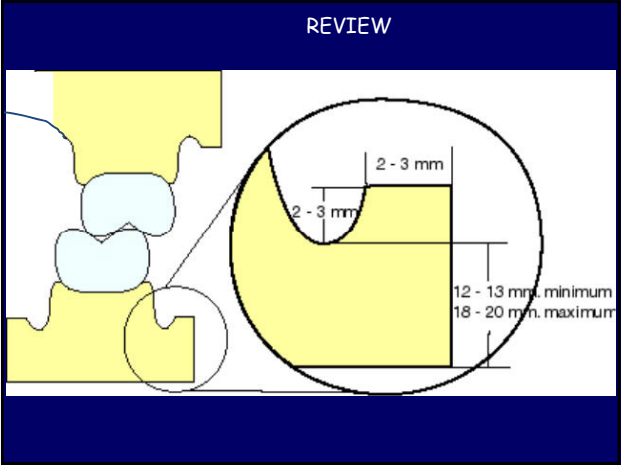
Could be three or four notches

**Principle:** Notches with no undercuts of significant dimension to be poured with mounting plaster and preserved during separation will allow repositioning of the cast back on the articulator after some event.

Removable has now gone to three round for ease

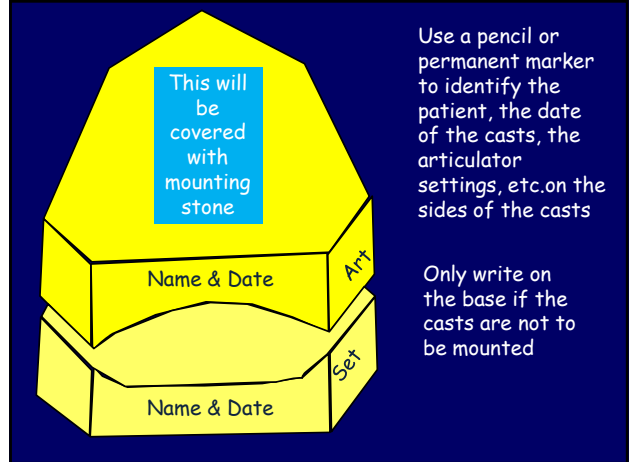
Classic was four sharp pyramids as are shown in handout





Fixed casts have the minimum vestibule without damaging the teeth during trimming.

Fixed casts are not meant to be separated from the mounting, so notches are merely "insurance" in case they do separate



Use a pencil or permanent marker to identify the patient, the date of the casts, the articulator settings, etc. on the sides of the casts

Only write on the base if the casts are not to be mounted



Bleaching Tray Cast

Stack only enough stone to remove the cast, not for a large base

Wrap to preserve in plan to repour

Tree to support



Pour with adequate thickness to separate, but no obvious base



## Cast Development

- Minimum positive blebs (finger wipe)
- **No voids on teeth (correct LC Blockout)**
- No tissue distortion (adjacent to teeth)
- **No vestibule (trim from base side)**
- Horseshoe or thin center area / hole
- **Central incisors vertical to flat base**
- Dry (for porosity and adaptation when ready to fabricate tray)

## Options for Maxillary Cast for Bleaching Tray

1. New alginate impression
2. **Duplicate existing cast**
3. Double-pour properly-managed alginate impression

## Double-Pour Alginate Impression

- Due to the extensive trimming of the cast for the tray, double-pouring the alginate impression generates a 2nd diagnostic cast for occlusal or esthetic treatment
- **First pour must be kept in wet towel or humidur until stone has set (20-45 m)**
- Rinse and repour (if no tears) results in cast of equal quality to an additional impression

(Haywood VB, Powe A. Using Double-poured Alginate Impressions to Fabricate Bleaching Trays. Operative Dent 1998;23(3):128-131.)

Final trimming of cast will have no vestibule  
2-10 mm beyond teeth  
flat base



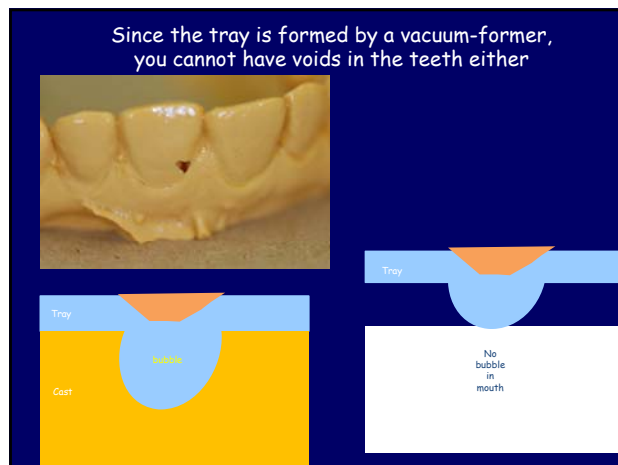
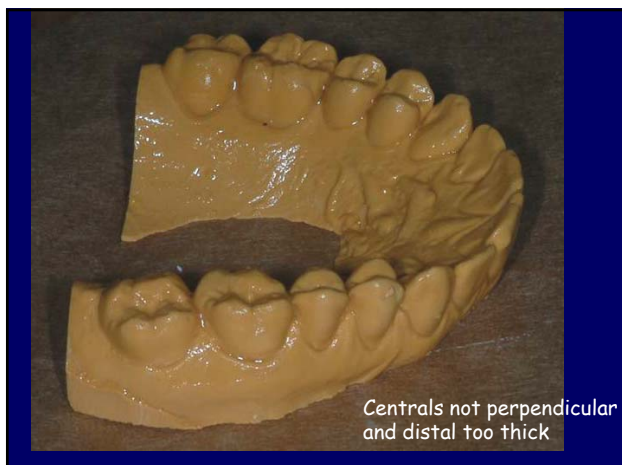
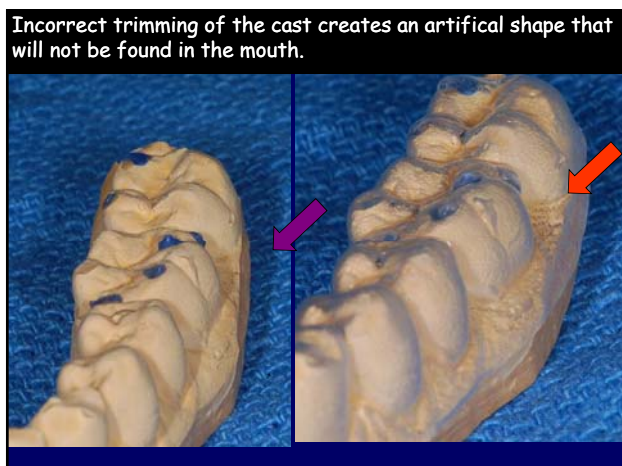
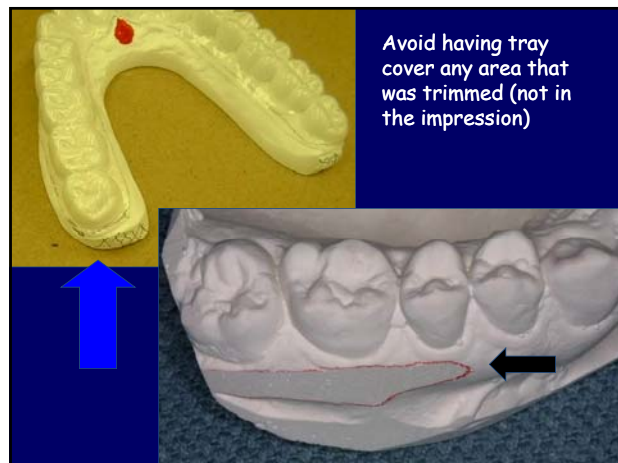
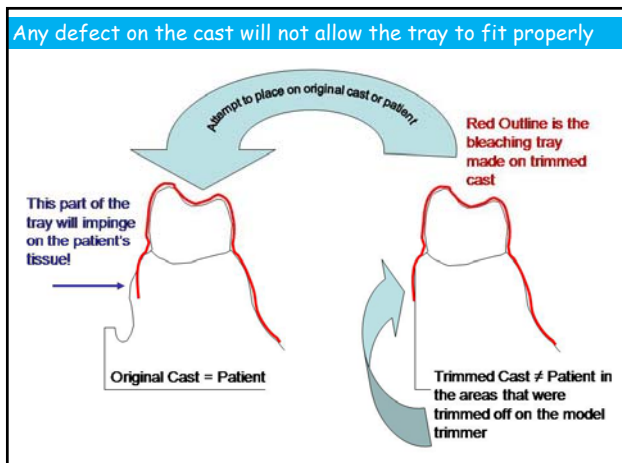
Trim base such that central incisor teeth are vertical  
This will avoid folds in the tray when fabricating

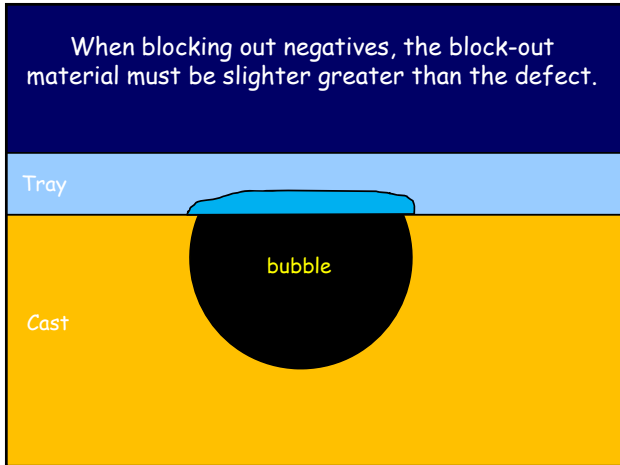


Flat base with hole in center or horseshoe shape

Avoid damaging teeth by trimming cast from base until vestibule is reached and hole is in palate







Cannot block out undercuts with wax, since tray is formed in vacuum former with heater

LC Blockout is a laboratory grade blue light cured composite.

It was designed for spacers or reservoirs on bleaching trays. MCG does not use reservoirs, but the material is good for other cast issues

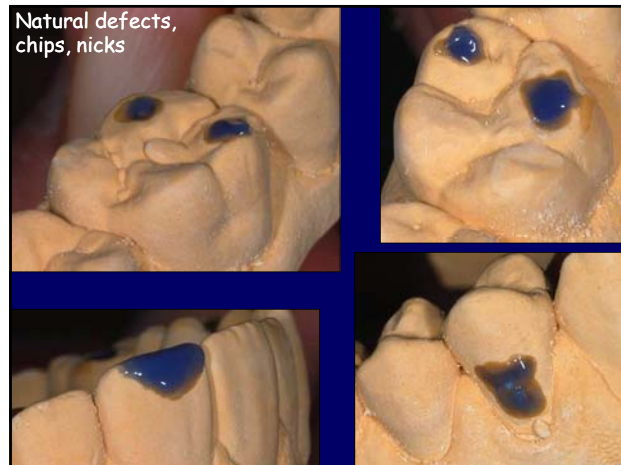
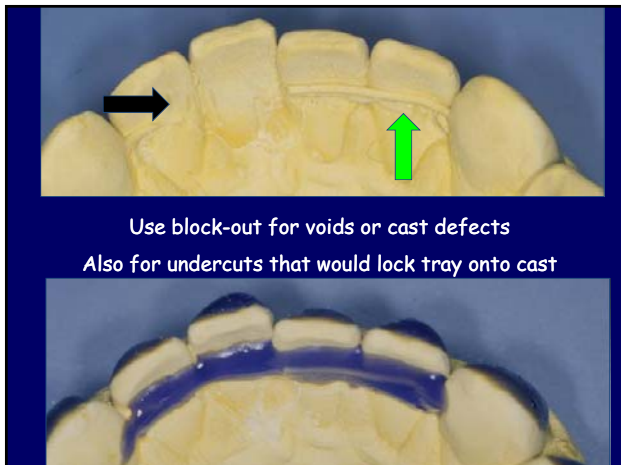
Use to fill in defects so the tray will fit  
Do not use stone, as that is difficult to see and messy

Slightly overfill  
Light cure for 20 seconds  
Wipe air-inhibited layer

If you have bubbles, they must be filled with LC Blockout (not wax) to be slighter bigger than the missing area, but smooth

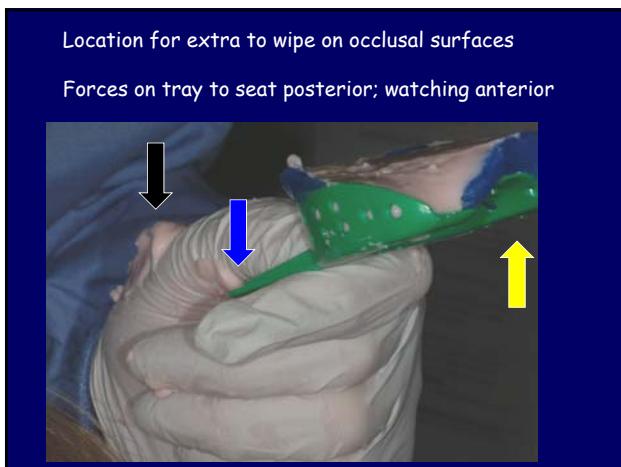
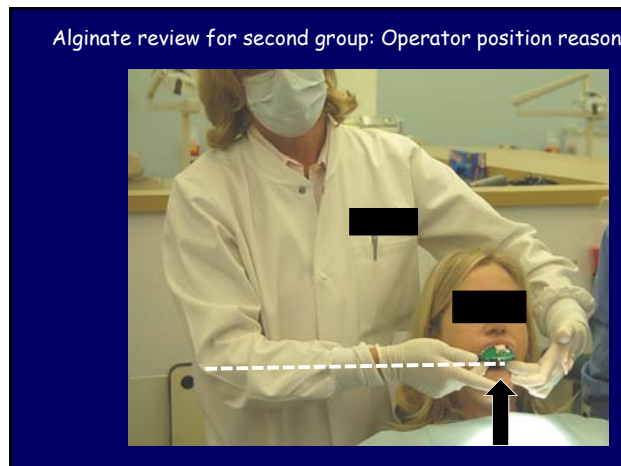
LC Blockout can be used to block out undercuts with fixed retainers, pontics on FPDs, and severe undercuts on teeth

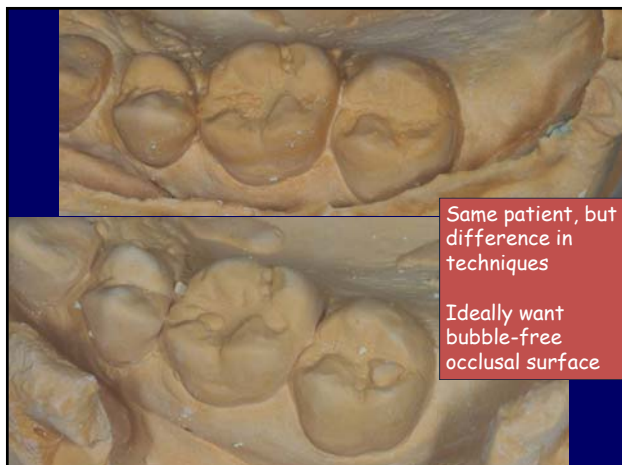




### Summary

- Have one maxillary cast of yourself trimmed for bleaching tray fabrication
- **Store this cast until the end of the semester in the box provided by disensary**
- You will fabricate a bleaching tray on this cast at the end of the course
- You will insert it on yourself to see how the tray feels in the mouth





### Clinic & Lab today

- **Alginate impressions**
- **Maxillary**
  - RPD
  - FP
  - B
- **Mandibular**
  - RPD
  - FP
- **Axium**
- **Project sheet**

- **Pour and Trim**
- RPD
- FP
- B
- **Need RPD by July 1 to mount with FB**
- **Model trimmers also on second floor**
- **Next session for catchup, retakes and trimming**

