Subject: WIP - Sword (Need advice / help)
Posted by lorddragonmaster on Thu, 04 Oct 2012 04:09:57 GMT
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Hello,

I am attempting to model a sword for the first time base off of one I saw in a cartoon.

The sword will be approx. 15cm in length.

My question is, as per the attached image, what is the minimum thickness my more delicate parts should be?

Mainly the yellow parts, and 4 arms from the hilt.

The square you see in the picture is 0.7mm, but I am kinda confused as to what is a good thickness to stick too for a plastic print?

Thanks for the help.

~LDM

File Attachments

1) 121003 BLADE.jpg, downloaded 56 times

Subject: Re: WIP - Sword (Need advice / help)
Posted by TurtlesAreCool on Thu, 04 Oct 2012 04:46:02 GMT
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Assumption: When you say "the square is .7mm", you mean that the square is .7mm thick in the non-square dimension. For example, the shape as a whole is 4mm x 4mm x .7mm.

If the above assumption is true, you are on the right path. Your freestanding shapes need to be at least .7mm. I would actually increase that to at least 1mm for anything that sticks out more than a few mm without support from other pieces. I printed a sword at the .7mm minimum in WSF as the first model I did, and it was rather flimsy. Very flexible and strong for its thickness, but it also was very un-swordlike in its flexibility.

Your sword has a lot of separate pieces. I think you need to find ways to connect those together -

let them support each other. Make sure that adjacent surfaces are touching - it will be a pain to paint anything too close together anyway.

From your comments, I assume you have seen the WSF materials page. Take another look at the guidelines. http://www.shapeways.com/materials/strong-flexible-design-gu idelines

Examples:
The Bringer: http://www.shapeways.com/model/422097/bringer_of_justice.htm l
On this guy, the wings are almost 2mm thick, so they are pretty strong. I did this because the wings are so large. The loincloth drape-thing is closer to 1mm or so. The size of things dramatically affects how thick they must be for strength. I even made the details on the armor larger than the .2mm minimum detail so I could be sure they would be easy to paint.

Steampunk Engineer: http://www.shapeways.com/model/540396/chief_engineer.html
On this guy, the things that stand by themselves (tubes, hoses, coat, hands) are all close to 1mm or more. The black tubes are hollow, but the hoses on the oxyacetylene welder are not hollow. Save money where you can, but not at the expense of strength.

Subject: Re: WIP - Sword (Need advice / help)
Posted by lorddragonmaster on Thu, 04 Oct 2012 16:42:29 GMT
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Ok, so I will thicken up the details to at least 0.70-1.0mm

I see the sword your angel held. How thick did you make it?

My sword has 2 blades that cross over each other.

So each blade is 1mm thick, so when the cross they are 2mm. Do you think that is thick enough for a 12cm blade? I am thinking of bumping it up so each is 1.5mm and total they are 3mm.

Subject: Re: WIP - Sword (Need advice / help)
Posted by stannum on Thu, 04 Oct 2012 17:53:20 GMT
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0.7 is only valid for "small" items. You risk rejection with anything below 0.91 if the item is 150mm in one axis (see the rules, or use the calculator... bah, calculator still not linked?). 2mm thick areas will be rather stiff.

Subject: Re: WIP - Sword (Need advice / help)
Posted by lorddragonmaster on Thu, 04 Oct 2012 18:09:11 GMT
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stannum wrote on Thu, 04 October 2012 17:530.7 is only valid for "small" items. You risk rejection with anything below 0.91 if the item is 150mm in one axis (see the rules, or use the calculator... bah, calculator still not linked?). 2mm thick areas will be rather stiff.

I am afraid I can only find the price calculator.

The blade is approximately
L=150mm
W=20mm
D=3mm (1.5 for areas the blade does not cross)

The details (gold design) are floating above the blade (anchored to the hilt) and are not supporting anything but themselves.

I bumped them up to 0.7mm. Would they not be considered small? The main body of the sword (blade to handle) is going to be:

3mm (blade)
5mm (handle)

Subject: Re: WIP - Sword (Need advice / help)
Posted by stannum on Fri, 05 Oct 2012 01:05:17 GMT
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Found it again, the wsf calculator. In any case, the rules mention a 1 to 166 ratio (0.7 minimum), and yours is 150, so 0.9036...

Subject: Re: WIP - Sword (Need advice / help)
Posted by Dragoman on Fri, 05 Oct 2012 12:21:50 GMT
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The blades don't need to be thicker overall. You could design them with one or more ridges along the middle as a reinforcement - real bledes also were often of varying thickness. Might even look better.

Greetings

Dragoman

Subject: Re: WIP - Sword (Need advice / help)
Posted by TurtlesAreCool on Fri, 05 Oct 2012 12:59:38 GMT
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I agree with Dragoman. The main part of the sword sounds like it is fine. The thickness and proximity of the details are the concern.

Regarding the Bringer's sword, note that I connected the tip to the base. The sword is 2 mm thick. Also, I double-checked the feathers, and I actually have those at only 1.4 mm thick. I could have sworn I made those 2mm. The loincloth is 1mm, and the armor ridges are actually almost .7mm. I overexaggerated those a bit - they would have been just as easily paintable at .5mm.

EDIT: So, for the details, I would suggest making the details touch the sword when possible. That will go a long way towards making those strong.

Subject: Re: WIP - Sword (Need advice / help)
Posted by lorddragonmaster on Sat, 06 Oct 2012 01:07:05 GMT
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Thank you everyone for your help.

I fixed the model, and everything is the appropriate thickness.

Now I am having manifold edge problems... T^T

http://www.shapeways.com/forum/index.php?t=msg&th=11080& amp;start=0&