Appendix B1 - 3D printed with ads

Annual Discount Rate		**0.07**	* this represents opportunity cost,interest					
Quarterly Discount Rate		**0.0175**	interest/4					
	Year 1				**Year 2**			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
n=	1	2	3	4	5	6	7	8
Inflows								
Roller Sales		$12,000	$14,400	$17,280	$20,736	$24,883	$29,860	$35,832
Total Revenue		**$12,000**	**$14,400**	**$17,280**	**$20,736**	**$24,883**	**$29,860**	**$35,832**
Outflows								
Labour	$2,880	$2,880	$4,320	$5,760	$5,760	$7,200	$8,640	$8,640
Advertising	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
Storage + Fulfillment	$0	$2,856	$3,428	$4,113	$4,936	$5,923	$7,108	$8,529
Printers	$2,660	$0	$1,330	$1,330	$0	$1,330	$1,330	$0
Filament	$594	$713	$855	$1,026	$1,232	$1,478	$1,774	$1,862
Energy	$41	$41	$62	$82	$82	$103	$123	$123
Total Costs	**$9,175**	**$9,490**	**$12,995**	**$15,312**	**$15,010**	**$19,034**	**$21,975**	**$22,155**
labour & storage/total cost	**31%**	**60%**	**60%**	**64%**	**71%**	**69%**	**72%**	**77%**
Quarterly Cash Flow	-$9,175	$2,510	$1,405	$1,968	$5,726	$5,849	$7,885	$13,677
Quarterly NPV	-$9,175	$2,424	$1,334	$1,836	$5,250	$5,271	$6,983	$11,904
Total NPV	$25,828							
Supporting Calculations								
Rollers per unit	1			Exchange rate	1.33			
Price per unit	20	CAD						
Material cost per roller	0.99	CAD	Per Prusa Software					

Estimated units/month via ama	200							
Quarterly growth	20%							
Sales Volume (units)	0	600	720	864	1037	1244	1493	1792
Rollers to be fabricated	600	720	864	1037	1244	1493	1792	1881
Fabrication TIme per roller	5	h	4 rollers/day/printer					
Cost per printer	1000	USD per Prusa						
	1330	CAD						
90 days/quarter, 4 rollers/printer/day = 360 rollers/printer/qtr								
n Printers	2	0	1	1	0	1	1	0
$ Printers	2660	0	1330	1330	0	1330	1330	0
total number of printers	2	2	3	4	4	5	6	6
Labour	2880	2880	4320	5760	5760	7200	8640	8640
* assume 1h/day to print deburr, maintain per printer, $16/hour								
Materials	594.00	712.80	855.36	1026.43	1231.72	1478.06	1773.67	1862.36
Printing Energy cost	41.13	41.13	61.69	82.25	82.25	102.82	123.38	123.38
kwh consumed per day	3.84	3.84	5.76	7.68	7.68	9.60	11.52	11.52
*average cost in ontario is								
*11.9 cents/kwh								
*prusa consumes 80 W during printing								
Storage	400	400	400	400	400	400	400	400
* assume one storage unit								
Advertising								
Instagram Ads	3000	3000	3000	3000	3000	3000	3000	3000
Amazon Fulfilment per unit	4.58							
Amazon Storage per 1000 unit	30	30	30	30	30	30	30	30
Storage and Fulfilment per u	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
* assume stored in storage unit when not being sold by amazon								

Appendix B2 - 3D printed without ads

Annual Discount Rate		**0.07**	* this represents opportunity cost,interest					
Quarterly Discount Rate		**0.0175**	interest/4					
	Year 1				**Year 2**			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
n=	1	2	3	4	5	6	7	8
Inflows								
Roller Sales		$12,000	$12,600	$13,230	$13,892	$14,586	$15,315	$16,081
Total Revenue		**$12,000**	**$12,600**	**$13,230**	**$13,892**	**$14,586**	**$15,315**	**$16,081**
Outflows								
Labour	$2,880	$2,880	$2,880	$2,880	$2,880	$2,880	$2,880	$2,880
Advertising			$1,000				$1,000	
Storage + Fulfillment	$0	$2,856	$2,999	$3,149	$3,307	$3,472	$3,646	$3,828
Printers	$2,660	$0	$0	$0	$0	$0	$0	$0
Filament	$594	$624	$655	$688	$722	$758	$796	$836
Total Costs	**$6,134**	**$6,360**	**$7,534**	**$6,717**	**$6,909**	**$7,110**	**$8,322**	**$7,544**
Quarterly Cash Flow	-$6,134	$5,640	$5,066	$6,513	$6,983	$7,476	$6,994	$8,537
Quarterly NPV	-$6,134	$5,448	$4,809	$6,077	$6,403	$6,737	$6,194	$7,431
Total NPV	$36,964							
Supporting Calculations								
Rollers per unit	1			Exchange rate	1.33			
Price per unit	20	CAD						
Material cost per roller	0.99	CAD	Per Prusa Software					
Estimated units/month via ama	200							
Quarterly growth	5%							
Sales Volume (units)	0	600	630	662	695	729	766	804

Rollers to be fabricated	600	630	662	695	729	766	804	844
Fabrication TIme per roller	5	h	4 rollers/day/printer					
Cost per printer	1000	USD per Prusa						
	1330	CAD						
90 days/quarter, 4 rollers/printer/day = 360 rollers/printer/qtr								
Need 1 printers to make 210/quarter, 2 for 500								
max rollers printed/qtr	844							
n Printers	2			0				
$ Printers	2660			0				
Labour	2880	2880	2880	2880	2880	2880	2880	2880
* assume 1h/day to print deburr, maintain per printer, $16/hour								
Materials	594.00	623.70	654.89	687.63	722.01	758.11	796.02	835.82
Storage	400	400	400	400	400	400	400	400
* assume one storage unit								
Advertising								
Instagram Ads								
Amazon Fulfilment per unit	4.58							
Amazon Storage per 1000 unit	30	30	30	30	30	30	30	30
Storage and Fulflment per unit	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
* assume stored in storage unit when not being sold by amazon								

Appendix B3 - Inejection moulded with ads

Annual Discount Rate		**0.07**	* this represents opportunity cost,interest						
Quarterly Discount Rate		**0.0175**	interest/4						
	Year 1				**Year 2**				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
n=	1	2	3	4	5	6	7	8	
Inflows									
Chalk Roller Sales	$0	$12,000	$14,400	$17,280	$20,740	$24,900	$29,880	$35,860	
Total Revenue	**$0**	**$12,000**	**$14,400**	**$17,280**	**$20,740**	**$24,900**	**$29,880**	**$35,860**	
Outflows									
Labour	$1,475	$320	$384	$461	$553	$664	$797	$956	
Advertising	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	
Storage + Fulfillment	$0	$2,856	$3,428	$4,113	$4,937	$5,927	$7,113	$8,536	
Tooling	$7,697								
Materials	$2,351								
Total Costs	**$14,522**	**$6,176**	**$6,812**	**$7,574**	**$8,490**	**$9,591**	**$10,909**	**$12,492**	
Quarterly Cash Flow	-$14,522	$5,824	$7,588	$9,706	$12,250	$15,309	$18,971	$23,368	
Quarterly NPV	-$14,522	$5,625	$7,203	$9,055	$11,232	$13,796	$16,801	$20,340	
Total NPV	$69,530								
Supporting Calculations									
Rollers per unit	1			Exchange rate	1.33				
Price per unit	20	CAD							
Material cost per roller	0.228	USD	Per inj mold						
Labour cost per roller	0.143	USD							
Packing cost per roller	0.056	USD							
Estimated units/month via	200								
Quarterly growth	20%								TOTAL
Sales Volume (units)	0	600	720	864	1037	1245	1494	1793	7753
Pumpkins to be fabricated	7753	0	0	0	0	0	0	0	

Material Cost per pumpkin									
Materials	2351.02	0	0	0	0	0	0	0	
Mfg Labour	1474.54								
Repacking Labour		320	384	460.80	553.0666667	664.00	796.8	956.2666667	
* assume 2 min per unit, $16/hr									
Packing	577.44344								
Storage	400	400	400	400	400	400	400	400	
* assume two storage unit									
Tooling	5787	USD							
	7696.71	CAD							
Advertising									
Instagram Ads	3000	3000	3000	3000	3000	3000	3000	3000	
Amazon Fulfilment per un	4.58								
Amazon Storage per 1000	30	30	30	30	30	30	30	30	
Storage and Fulflment per	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	
* assume stored in storage unit when not being sold by amazon									

Appendix B4 - Injection Moulded without ads

Annual Discount Rate		**0.07**	* this represents opportunity cost,interest						
Quarterly Discount Rate		**0.0175**	interest/4						
	Year 1				**Year 2**				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
n=	1	2	3	4	5	6	7	8	
Inflows									
Chalk Roller Sales	$0	$12,000	$12,600	$13,240	$13,920	$14,620	$15,360	$16,140	
Total Revenue	**$0**	**$12,000**	**$12,600**	**$13,240**	**$13,920**	**$14,620**	**$15,360**	**$16,140**	
Outflows									
Labour	$931	$320	$336	$353	$371	$390	$410	$430	
Advertising	$0	$0	$0	$0	$0	$0	$0	$0	
Storage + Fulfillment	$0	$2,856	$2,999	$3,152	$3,313	$3,480	$3,656	$3,842	
Tooling	$7,697								
Materials	$1,484								
Total Costs	**$10,112**	**$3,176**	**$3,335**	**$3,505**	**$3,685**	**$3,870**	**$4,066**	**$4,272**	
Quarterly Cash Flow	-$10,112	$8,824	$9,265	$9,735	$10,235	$10,750	$11,294	$11,868	
Quarterly NPV	-$10,112	$8,523	$8,795	$9,083	$9,385	$9,687	$10,003	$10,330	
Total NPV	$55,693								
Supporting Calculations									
Rollers per unit	1			Exchange rate	1.33				
Price per unit	20	CAD							
Material cost per roller	0.228	USD	Per inj mold						
Labour cost per roller	0.143	USD							
Packing cost per roller	0.056	USD							
Estimated units/month via	200								
Quarterly growth	5%								TOTAL
Sales Volume (units)	0	600	630	662	696	731	768	807	4894
Pumpkins to be fabricated	4894	0	0	0	0	0	0	0	

Material Cost per pumpkin									
Materials	1484.06	0	0	0	0	0	0	0	
Mfg Labour	930.79								
Repacking Labour		320	336	353.07	371.2	389.87	409.6	430.4	
* assume 2 min per unit, $16/hr									
Packing	364.50512								
Storage	400	400	400	400	400	400	400	400	
* assume two storage unit									
Tooling	5787	USD							
	7696.71	CAD							
Advertising									
Instagram Ads									
Amazon Fulfilment per un	4.58								
Amazon Storage per 1000	30	30	30	30	30	30	30	30	
Storage and Fulflment per	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	
* assume stored in storage unit when not being sold by amazon									