

Additional File 4

iMAP Milk Ladder Recipes

STEP 1: COOKIE OR BISCUIT – SWEET/PLAIN

Recipe	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
<i>1 cookie/biscuit</i>					<i>1 ml</i>	<i>0.35 g</i>	
Bakes 20 small finger size biscuits/cookies	1 cup	125 g	4.5 oz	Flour (wheat or wheat free)			180°C or 350°F Bake for 10 – 15 min Depending on size of cookie/biscuit Practical tip – let dough cool in fridge for 30 min – which makes it easier handle
	¼ teaspoon	1 g		Xanthan gum – if wheat free flour is used			
	¼ cup	50 g	1 ¾ oz	Cold dairy free spread			
	¼-½ cup (may vary depending on fruit)			Grated apple/pear/ pureed banana			
	1 teaspoon	2 g		Skimmed/non-fat milk powder*			
	Tip of a knife			Vanilla powder			
<ol style="list-style-type: none"> Mix the flour, xanthan gum and milk powder Rub in the cold dairy free spread Mix in the fruit (you may need to add a little bit more if it is too dry) and vanilla powder Roll out and cut in finger sized strips Bake in the oven 							
Start with 1 cookie/biscuit (equivalent to 1 ml of milk); increase to 2 and then 3 cookies/biscuits (equivalent to 3 ml of milk - if child can manage a portion of 3 biscuits/cookies)					<i>3 ml</i>	<i>0.105 g</i>	180°C or 350°F

STEP 1: COOKIE OR BISCUIT – SAVOURY

Recipe	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
<i>1 cookie/biscuit</i>					<i>1 ml</i>	<i>0.035g</i>	
Bakes 20 small finger size biscuits/cookies	1 cup	125 g	4 ½ oz	Flour (wheat or wheat free)			180°C or 350°F Bake for 10 – 15 min depending on size of cookie/biscuit Practical tip – let dough cool in fridge for 30 min – which makes it easier handle
	¼ teaspoon	1g		Xanthan gum – if wheat free flour is used			
	¼ cup	50 g	1 ¾ oz	Cold dairy free spread			
	⅓ cup	40 g	1 ¼ oz	Grated DAIRY FREE CHEESE			
	1 teaspoon	2 g		Skimmed/non-fat milk powder*			
	2 tablespoons	10 ml		Water			
<ol style="list-style-type: none"> 1. Mix the flour, xanthan gum and milk powder 2. Rub in the cold dairy free spread 3. Mix in the grated DAIRY FREE CHEESE. Add water (you can add a bit more if it is too dry) 4. Roll out and cut in finger sized strips 5. Bake in the oven 							
Start with 1 cookie/biscuit (equivalent to 1 ml of milk); increase to 2 and then 3 cookies/biscuits (equivalent to 3 mls of milk - if child can manage a portion of 3 biscuits/cookies)					<i>3 ml</i>	<i>0.105 g</i>	180°C or 350°F

STEP 2: MUFFIN – SWEET/PLAIN

Recipe	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Start with half a muffin and then one muffin: <i>half a muffin</i> : <i>one muffin</i>					12.5 ml 25 ml	0.0.875 g 0.875 g	
Bakes 10 muffins	2 cups	250 g	8 oz	Flour (wheat or wheat free)			180°C - 200°C or 350°F- 400°F Bake for 15 – 20 mins Tip – use a whisk and milk and oil together. This makes the muffins light
	½ tsp	3 g		Xanthan Gum – if wheat free flour is used			
	2 ½ tsp	10 g	1/3 oz	Baking powder			
	2 level tbsp	25 g	2/3 oz	Sugar – if your child is older you can add 2-3 tablespoons			
	Pinch			Salt			
	¼ cup	50 ml	1 2/3 fl oz	Sunflower oil or Canola oil			
	1 cup	250 ml	8 fl oz	Milk**			
	½ cup and 1 tbsp	110 g	3.9 oz	Finely chopped/mashed fruit: apple/pear/banana			
	Vanilla essence to taste						
<ol style="list-style-type: none"> 1. Mix flour, xanthan gum, baking powder, sugar and salt 2. Mix oil and milk together and to the dry ingredients 3. Finally add in chopped fruit and vanilla (additional) and mix through 4. Bake in oven 							
1.5 muffin = equivalent to baked milk muffin from Mount Sinai Recipe(1) (which contains 1.3 g milk)							

STEP 2: MUFFIN – SAVOURY

Recipe	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
<i>Start with half a muffin and then one muffin: half a muffin : one muffin</i>					12.5 ml 25 ml	0.0.875 g 0.875 g	
Bakes 10 muffins	2 cups	250 g	8 oz	Flour (wheat or wheat free)			180°C - 200°C or 350°F- 400°F Bake for 15 – 20 mins Tip – use a whisk and milk and oil together. This makes the muffins light
	½ teaspoon	3 g		Xanthan Gum – if wheat free flour is used			
	2 ½ tsp	10 g	1/3 oz	Baking powder			
	Pinch			Salt			
	¼ cup	50 ml	1 2/3 fl oz	Sunflower oil or Canola oil			
	1 cup	250 ml	8 fl oz	Milk **			
	½ cup	60 g	2 oz	Grated DAIRY FREE CHEESE			
<ol style="list-style-type: none"> Mix flour, xanthan gum, baking powder and salt Mix oil and milk together and to the dry ingredients Add DAIRY FREE CHEESE; Add a bit of water if required - Feel free to chop in a handful of spinach to add colour and fibre Bake in oven 							
1.5 muffin = equivalent to baked milk muffin from Mount Sinai Hospital(1) (which contains 1.3 g milk)							

Step 3: PANCAKE

Recipe	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
<i>Start with half pancake and then 1 pancake as indicated below: half a pancake : one pancake</i>					21 ml 42 ml	0.735 g 1.47 g	
Bakes 6 pancakes	1 cup	125 g	4.5 oz	Flour (wheat or wheat free)			Fry in a hot pan using oil of choice until golden brown and crispy
	2 ½ tsp	10 g	1/3 oz	Baking powder			
	¼ tsp	1-2 g	pinch	Salt			
	2 tbsp	30 ml	1 fl oz	Sunflower or Canola oil			
	1 cup	250 ml	8 fl oz	Milk**			
	2/3 cup	50 ml	1.5 fl oz	Water			
<ol style="list-style-type: none"> 1. Add all ingredients into a mixing bowl and mix together 2. Fry in a hot pan 							
<p>Some children do not like cake or pancake textures: For these children there is the option of boiling a small potato, adding 42 ml of milk (1.3 g protein) and some milk free spread, cover with foil and bake in the oven for 40 minutes at 180°C - 200°C or 350°F- 400°F. This product does not contain any wheat in the food matrix and it may therefore affect the allergenicity.</p>							

Step 4: CHEESE

Food	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Cheese	2 ½ tbsp	15 g	½ oz	Cheese***	15 g	3.43 g	85°C or 185°F (no need to further heat this – just an indication of how cheese is made)

Step 5: YOGHURT

Food	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Yoghurt	½ cup	125 ml	4.5 fl oz	Yoghurt	125 ml	6.0 g depending on brand	98°C (no need to further heat this – just an indication of how yoghurt is made)

Once your child tolerates yoghurt, butter, spread, chocolate buttons, fromage frais, petit filous (be careful of the sugar content), you can introduce softer cheese like cream cheese and camembert/brie – remember to use pasteurised soft cheese for children

Step 6: MILK

Food	tsp/tbsp/ cup	g/ml	oz/lb	Ingredient	Milk per portion (ml)	Milk protein per portion	Temperature
Pasteurised Milk	⅔ cup	100 ml	3.5 fl oz	Pasteurised Milk**	100 ml	3.47 g	57-68°C 15-20 seconds Both pasteurised milk and infant formula is produced this way – there is no need to further heat this.
	¾ cup	200 ml	7 fl oz		200 ml	6.95 g	

Protein information obtained from: <https://ndb.nal.usda.gov/ndb/search/list>

* The protein content of milk powder was calculated using: Basic Report: 01091, Milk, dry, non-fat, regular, without added vitamin A and vitamin D

** The protein content of milk was calculated using: Basic Report: 01085, Milk, non-fat, fluid, with added vitamin A and vitamin D (fat-free or skim)

To convert g of milk to ml of milk a conversion of 1.031 was used i.e. 1 g milk = 103.1 g = 100 ml

*** The protein content of cheese was calculated using: Basic Report: 01009, Cheese, cheddar

1. Leonard SA, Nowak-Wegrzyn AH. Baked Milk and Egg Diets for Milk and Egg Allergy Management. Immunol Allergy Clin North Am. 2016;36(1):147-59.