|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Developing outcomes could involve one or more operations:** | | **Food Technology** | **Resistant Materials** | **Fabric Technology** | **Mātauranga Māori / Taonga** | **Other** |
| **TRANSFORMING**  L1 Definition:   * transforming by altering the structure | Working with existing materials in ways that change their structure to maximise product performance | Dehydrating Fruit rolls  Freeze dry   * Fruit (Berries etc) * Meals for hiking   Making   * Peanut butter * Biltong   Fermentation one ingredient   * Sauerkraut   Smoking   * Tuna (eel) * Cheese * Bacon * Fish – kippers, salmon, trout   Chocolate | * Shredding plastic * Timber into sawdust. * Metal shavings * 3D printing – extrusion * Vacuum forming Pokepoke korekore * Forging/hammering(pounding) * 3D printing – using PLA * Melting and re-extruding, moulding plastics | Felting  Batik  Threads and offcuts of fabrics  Aligning and drawing fibres to spin yarn using s or z twist | * Kawakawa Tea * Kānga pirau – rotten corn   Harakeke – stripping/dyeing more info   * Processing harakeke– hapene (hāpine) to alter structure in preparation for weaving (softens, prevents cracking)   Putiputi  Muka – for weaving fabrics and making vine kī for sports  Manu aute – the face  Hue – Gourd– storage containers-water, food preservation, instruments | Pottery  Ceramics |
| **Developing outcomes could involve one or more operations:** | | **Food Technology** | **Resistant Materials** | **Fabric Technology** | **Mātauranga Māori / Taonga** | **Other** |
| **COMBINING**  L1 Definition:   * combining by mixing materials | **Incorporating** at least one material with another to maximise product performance.  Must be used together to function as needed.  associate, connect, link, relate, and unite. | Whipped cream with icing sugar  Kimchi  Vinegar/onion pickling  Wet and dry ingredients  Making a batter / a base / a dough  Making muesli | Waxing/staining/varnishing wood  Combining materials   * Resin material inserts * Powder coating metal * Fabric and resin on timber | Patchwork  Applique  Screen printing  fusing stabiliser to fabric  yarn production – e.g. poly/cotton  fabric production – e.g. sportwear  incorporating lycra  Buckram – to stiffen | Fry bread batter  Pōhā tītī – food preservation and storage in Ngāi Tahu  combining different materials e.g wood and resin  Bone and wood  Bone and pounamu  Bone and stain    Māra hūpara (crafted wood – refer Harko Brown)  Tukutuku panels – hard flax through wood  Aute cloth – Māori tapa cloth | Glazing of Pottery, ceramics  Mosaics  Led lighting  Welding…. More info  Soldering – electronics  Combination of knowledges  Wool and feathers - korowai |
| **Developing outcomes could involve one or more operations:** | | **Food Technology** | **Resistant Materials** | **Fabric Technology** | **Mātauranga Māori / Taonga** | **Other** |
| **MANIPULATING**  L1 Definition:   * manipulating materials without changing their structure or composition | Working with existing materials in ways that do not change their composition and structure, or their properties. Manipulation in ways that maximise its contribution to the overall performance of the product - Technology Education in NZ – a guide for teachers | Icing a cake  Coating a product  The humble potato   * Mash * Roast * Boil * Rosti * fry | * Laminating * Lazer cutting * CNC machining * Steam bending plywood * Sheet metal bending | Heat setting pleats – would heat setting change the structure of the fibre?  Vinyl cutting  Gathering  Smocking  Pleats  Reducing fullness | Rua kumara – kūmara storage  Carving   * bone * pounamu * wood   waka, jewellery, raupō whare, clay whare  Moulds   * pewter   Manu tukutuku, manu taratahi – body of the kites | Air dry clay / polymer  Embossing – raised relief against a background  Debossing – recessed relief sunken into the surface of a material   * Images and designs in multiple materials. |
| **Developing outcomes could involve one or more operations:** | | **Food Technology** | **DResistant Materials** | **Fabric Technology** | **Mātauranga Māori / Taonga** | **Other** |
| **FORMING:**  L1 Definition:   * forming to create a new material | Bringing oneor more materials together to create a new material that has a different chemical composition and/or structure with different performance properties – Technology Education in NZ – a guide for teachers. | Oat/almond/potato Milk  Yogurt  Ice Cream  Kombucha  Deep frying of battered item  Making a muesli bar | * Wood + wax = fibre board * Glass + polymer = fibre glass or fibre polymer * 3D printing+ e.g | Knitting – acrylic with a wool for durability  Crochet  Weaving – warp/weft  Yarn – wool carded and twisted with polyester for strength  Adding additional and unexpected materials e.g copper wire, tinsel, twigs to any of the above | Rēwena Bread  Rongoā (Māori Medicine)  Muka is prepared fibre of New Zealand flax. Prepared primarily by scraping, pounding, and washing, it is a key material in Māori traditional textiles where it is usually used in tāniko or twined weaving.  Harakeke paper  Natural dyes – purple from poroporo plant | Making Paper  Comfrey and kawakawa cream |