

PDC handbook

07/04/2017



1. Context

This handbook is a reference to accompany the Permaculture Design Certificate course. It provides links to further reading on most of the topics mentioned in the PDC Core Curriculum, drawn from a range of sources, most notably the Permaculture Association's Knowledge Base.

It is intended to be a living document that will grow and be updated over time, but for now, we hope it will be useful as an extended online reading list.

The Association wishes to thank James Pullein for his hard work in putting this handbook together.

2. Ethics

<https://knowledgebase.permaculture.org.uk/ethics>

3. Principles

Attitudinal Principles:

- Work with nature, not against
- The problem is the solution (Liabilities into assets)

- Make the least change for the greatest possible effect
- The yield of a system is theoretically unlimited
- Start from your back door and work outwards
- Everything gardens (or has an effect on its environment)

<https://knowledgebase.permaculture.org.uk/principles>

ecological principles

Cycling of energy, nutrients & resources

- Succession

<https://knowledgebase.permaculture.org.uk/resources/websites/permaculture-design-tir-penrhos-isaf>

<https://knowledgebase.permaculture.org.uk/articles/my-sustainable-gardening-journey>

- edge effects

<https://knowledgebase.permaculture.org.uk/principles/edge-effects>

- microclimate

<https://knowledgebase.permaculture.org.uk/resources/websites/article-agroforestryalleycropping-video-permaculturenewsorg>

every element performs multiple functions

- Co-operation rather than competition. How does this square with the fact that nature is competitive as well as collaborative?
- Niches – how to profit from them
- Use stacking in space and time to increase yields.
- Value Diversity: including guilds.
- Efficient energy planning (e.g. zone, sector, slope).
- Place elements to maximise the beneficial relationships between them (relative location).
- Value biological resources
- everything works both ways, and permaculture is information and imagination-intensive.

Principles sessions should mention that there are contributions from many other sources. *You may choose to explore them in depth as well.*

- Holmgren Principles
<https://knowledgebase.permaculture.org.uk/principles>

Permaculture design can be seen from many different perspectives e.g.:

- Energy Management
- People Care
- Landscape Design
- Pattern understanding
 - o Physical
 - o Mental
 - o Behavioural
 - o Natural
 - o Designing from pattern to detail

4. Design

Process Frameworks:

e.g. SADIM / OBREDIMET / other.

<https://knowledgebase.permaculture.org.uk/design>

Skills, Tools & methods:

<https://knowledgebase.permaculture.org.uk/design-methods/surveying>

- Observation
- Patterns
- Research
- Client Interview
<https://knowledgebase.permaculture.org.uk/design-methods/group-survey-client-interview>
- Surveying
<https://knowledgebase.permaculture.org.uk/design-methods/wildlife-surveys>

<https://knowledgebase.permaculture.org.uk/design-methods/soil-surveys>

<https://knowledgebase.permaculture.org.uk/design-methods/plant-surveys>

- Maps & Mapping

<https://knowledgebase.permaculture.org.uk/design-methods/making-base-map>

- Key Planning Tools:

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- o Zones, sectors, energies in the landscape

<https://knowledgebase.permaculture.org.uk/design-methods/zoning>

<https://knowledgebase.permaculture.org.uk/design-methods/sector-planning>

<https://knowledgebase.permaculture.org.uk/design-methods/sector-analysis>

- o Reading the landscape

<https://knowledgebase.permaculture.org.uk/practical-solutions/reading-landscape>

- o Relative location

<https://knowledgebase.permaculture.org.uk/principles/relative-location>

- o Input/output analysis

<https://knowledgebase.permaculture.org.uk/design-methods/input-output-analysis>

- o Climate & microclimate

<https://knowledgebase.permaculture.org.uk/resources/websites/wikipedia-entry-european-hardiness-zones-usda-zoning>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-agroforestry-support-species-cold-climates-eric-toensmeier>

- o <https://knowledgebase.permaculture.org.uk/resources/websites/agroforestrynews-permacultureactivistnet>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-agroforestryalleycropping-video-permaculturenewsorg>

- o Further analysis tools (e.g. identifying functions and elements, *SMART goals*, *SWOC*, *placement*, *design by limiting factors*, *process flows*)

Many teachers also include:

<http://permaculturenews.org/2013/12/09/keyline-design-organizing-pattern-permaculture-design-part-1-sweden/>

- Levelling tools: A-frame, Bunyip
<https://knowledgebase.permaculture.org.uk/resources/books/making-and-using-frame>
<https://knowledgebase.permaculture.org.uk/resources/videos/frame-level-regenerative-revolution>
- Plants, animals, structures, tools/technologies, events (PASTE).
<https://knowledgebase.permaculture.org.uk/design-methods/pase>
- Mapping tools:
 - - o Elevation
<https://knowledgebase.permaculture.org.uk/design-methods/sectional-elevation>
 - o Pacing
<https://knowledgebase.permaculture.org.uk/design-methods/knowning-your-pace>
 - o Slope/aspect
- Plus, Minus, Interesting (PMI) evaluation tool
<https://knowledgebase.permaculture.org.uk/design-methods/pmi>
- Conservation & hierarchy of intervention
<http://donellameadows.org/archives/leverage-points-places-to-intervene-in-a-system/>
- Yeoman's scale of permanence
<http://permaculturenews.org/2013/12/09/keyline-design-organizing-pattern-permaculture-design-part-1-sweden/>
- McHarg's exclusion method
<https://knowledgebase.permaculture.org.uk/resources/books/design-nature>
- Limiting factors and hierarchy of resource use
<https://knowledgebase.permaculture.org.uk/design-methods/zoning>
<https://knowledgebase.permaculture.org.uk/design-methods/limiting-factors-removal>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-drought-proofing-california...not-news-permaculturenewsorg>

<https://knowledgebase.permaculture.org.uk/resources/books/our-ecological-footprint-reducing-human-impact-earth>

<https://knowledgebase.permaculture.org.uk/resources/books/sharing-natures-interest-ecological-footprints-indicator-sustainability>

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- Random assembly
- Data overlay
- Collaborative decision making
- Phenological/biotime diaries
- Wild design
- sit spot
- Shade mapping
- Spirals of erosion & entropy
- Cascade of intervention
- 6 coloured thinking hats

<https://knowledgebase.permaculture.org.uk/resources/books/six-thinking-hats>

https://en.wikipedia.org/wiki/Six_Thinking_Hats

Design Practice

- A series of opportunities to develop and practice design skills throughout the course, leading to...
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- Final design exercise (*This may be individual and/or group exercise*) that is both sustainable and productive
- Group working/process skills, for example:
 - o Planning and allocating tasks and time
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 - o Decision making in groups (Sociocracy for example)

<https://knowledgebase.permaculture.org.uk/practical-solutions/meeting-methods>

- o Communication & conflict resolution

<https://knowledgebase.permaculture.org.uk/resources/websites/consensus-decision-making-quaker-mode-wikipedia>

<https://knowledgebase.permaculture.org.uk/resources/websites/consensus-decision-making-quaker-mode-wikipedia>

- o Using permaculture principles & ethics in groups

5. Themes

Soil

The following topics should be covered:

- Soil food web: macro- and micro-organisms and their relationships

<https://knowledgebase.permaculture.org.uk/resources/books/article-soil-biology-soil-biology-primer-elaine-r-ingham>

<https://knowledgebase.permaculture.org.uk/resources/videos/life-soil-dr-elaine-ingham-part-1-introduction>

<https://www.youtube.com/watch?v=xzthQyMaQaQ>

<https://www.soilassociation.org/our-campaigns/save-our-soils/about-soil-health/>

<https://www.soilassociation.org/our-campaigns/save-our-soils/research-references/>

<https://knowledgebase.permaculture.org.uk/resources/books/teaming-microbes-organic-gardeners-guide-soil-food-web-revised-edition>

- Tilling: pros & cons

- Composting

<https://knowledgebase.permaculture.org.uk/resources/websites/article-how-make-compost-tea-ali-lawrence>

<https://knowledgebase.permaculture.org.uk/resources/websites/garden-organic-page-how-compost>

<https://knowledgebase.permaculture.org.uk/articles/my-sustainable-gardening-journey>

- Mulching – why and how

<https://knowledgebase.permaculture.org.uk/resources/books/mulch-book-complete-guide-gardeners-revised-and-updated-donna-moore>

<https://knowledgebase.permaculture.org.uk/articles/harvesting-fertility-scythe>

<https://www.rhs.org.uk/advice/profile?PID=323>

- Soil sampling & analysis: types, textures, pH. Simple solutions.
<https://knowledgebase.permaculture.org.uk/design-methods/soil-surveys>
- Mycorrhizal and bacterial associations
<https://en.wikipedia.org/wiki/Mycorrhiza>
<https://www.rhs.org.uk/advice/profile?pid=633>
https://en.wikipedia.org/wiki/Soil_biology
- Fertility factors
- Erosion – a natural process: plus and minus
- Indicator species and dynamic accumulators

Water

A minimum of 4 of the following topics should be covered in detail and all of them mentioned:

- Water availability
- The hydrological cycle
- Rainwater harvesting
<https://knowledgebase.permaculture.org.uk/practical-solutions/rainwater-harvesting>
<https://knowledgebase.permaculture.org.uk/resources/websites/article-9-tips-collecting-rainwater>
- Retention in the landscape (e.g. soils, swales, key line planning etc). Dryland vs temperate.
<https://knowledgebase.permaculture.org.uk/resources/books/keyline-design-mark-iv-'soil-water-carbon-every-farm'-building-soils-harvesting>
<https://knowledgebase.permaculture.org.uk/resources/websites/wikipedia-entry-air-well-condenser>
<https://knowledgebase.permaculture.org.uk/articles/reduce-flood-risk-rain-garden>
<https://knowledgebase.permaculture.org.uk/resources/websites/keyline-designs->

[consulting-australia](#)

<https://knowledgebase.permaculture.org.uk/resources/websites/what-keyline-design-ridgedale-permaculture>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-introduction-swales-workhorse-water-harvesting-earthworks>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-rapidly-cut-swales-tractor-blade-permaculturenewsorg>

<https://knowledgebase.permaculture.org.uk/resources/websites/article-when-not-use-swales-permaculturereflectionscom>

<https://knowledgebase.permaculture.org.uk/resources/videos/water-life-water-retention-landscape-tamera>

- Drainage

<https://knowledgebase.permaculture.org.uk/articles/reduce-flood-risk-rain-garden>

- Water use in the home and at work and domestic water saving

<http://answers.practicalaction.org/our-resources/community/water-and-sanitation-1-2>

[http://translate.google.com/translate?](http://translate.google.com/translate?hl=en&sl=fr&u=http://www.jeveuxauverlaplanete.fr/index.php?option=com_content&id=70&showall=1&prev=search)

[hl=en&sl=fr&u=http://www.jeveuxauverlaplanete.fr/index.php?option=com_content&id=70&showall=1&prev=search](http://www.jeveuxauverlaplanete.fr/index.php?option=com_content&id=70&showall=1&prev=search)

<http://www.warkawater.org/design>

<https://knowledgebase.permaculture.org.uk/articles/permaculture-everyday-washing-dishes-and-saving-water>

<https://knowledgebase.permaculture.org.uk/practical-solutions/sustainable-urban-drainage>

<https://knowledgebase.permaculture.org.uk/practical-solutions/water-tanks>

<https://knowledgebase.permaculture.org.uk/practical-solutions/compost-toilets>

- Aquaculture

<https://knowledgebase.permaculture.org.uk/practical-solutions/aquaculture>

<https://knowledgebase.permaculture.org.uk/practical-solutions/integrated-aquaculture>

<https://knowledgebase.permaculture.org.uk/practical-solutions/ecological-aquaculture>

- Water as an energy store

<https://knowledgebase.permaculture.org.uk/resources/websites/article-hydraulic-ram-pump-wikipedia>

<http://www.resilience.org/resource-detail/1527704-kramerterhof-a-tour-of-sepp-holzer-s>

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Plants/trees

A minimum of 5 of the following topics should be covered in detail and all of them mentioned:

- Tree species, native & exotic, and uses
- Energy transactions of trees
- Forest gardening

<https://knowledgebase.permaculture.org.uk/practical-solutions/forest-gardens>

- Agroforestry

<https://knowledgebase.permaculture.org.uk/practical-solutions/agroforestry>

- Windbreaks & shelterbelts

<https://knowledgebase.permaculture.org.uk/resources/videos/agroforestry-practices-windbreaks>

- Riparian buffers

- Grassland management; holistic management

<https://knowledgebase.permaculture.org.uk/practical-solutions/holistic-rangeland-management>

- Plant communities / Indicator plants

- Orchards

<https://knowledgebase.permaculture.org.uk/practical-solutions/gardens-and-orchards>

- Sustainable woodland management

<https://knowledgebase.permaculture.org.uk/practical-solutions/forest-woodlands>

- Guilds and other ways of looking at plant co-operation

<https://knowledgebase.permaculture.org.uk/resources/videos/permaculture-guilds-toby-hemenway>

Growing your own food

A minimum of 4 of the following topics should be covered in detail and all of them

mentioned:

- polycultures – why & how

<https://knowledgebase.permaculture.org.uk/resources/videos/perennial-polyculture-guidelines>

<https://knowledgebase.permaculture.org.uk/resources/videos/crmpi-forest-garden>

<https://knowledgebase.permaculture.org.uk/resources/videos/introduction-polycultures-caroline-aitken-part-1>

- permaculture and organic gardening

<https://knowledgebase.permaculture.org.uk/practical-solutions/organic-gardening>

- bed creation

<https://knowledgebase.permaculture.org.uk/resources/websites/food-skyorguk-step-step---make-your-own-permaculture-no-dig-raised-bed>

<https://knowledgebase.permaculture.org.uk/articles/my-sustainable-gardening-journey>

<https://knowledgebase.permaculture.org.uk/resources/websites/what-keyline-design-ridgedale-permaculture>

- seasonal planning

- food preservation

- field scale strategies

- designing broadscale agriculture

<https://knowledgebase.permaculture.org.uk/practical-solutions/broadscale-agriculture>

- hugelkultur and Sepp Holzer's work

<https://knowledgebase.permaculture.org.uk/resources/websites/hugelkultur-inspirationgreencom>

<https://www.permaculture.co.uk/articles/many-benefits-hugelkultur>

- <https://richsoil.com/hugelkultur/>

<https://knowledgebase.permaculture.org.uk/resources/videos/hugelkultur-ultimate-raised-garden-beds>

<http://www.resilience.org/resource-detail/1527704-kramerterhof-a-tour-of-sepp-holzer-s>

<https://knowledgebase.permaculture.org.uk/resources/books/sepp-holzers-permaculture>

<https://knowledgebase.permaculture.org.uk/resources/videos/farming-nature-case->

[study-successful-temperate-permaculture](#)

- livestock / animals in the system

<https://knowledgebase.permaculture.org.uk/practical-solutions/managing-animals>

Resource use

- Ecological footprints,

<https://knowledgebase.permaculture.org.uk/resources/books/our-ecological-footprint-reducing-human-impact-earth>

<https://knowledgebase.permaculture.org.uk/resources/books/sharing-natures-interest-ecological-footprints-indicator-sustainability>

- Resource choices
- Personal asset assessment – knowing your own value
- Setting future learning – recognise where you can strengthen your design capability

Social systems/contexts

- A minimum of 5 of the following topics should be covered in detail and all of them mentioned:
- Zone 00: personal resilience e.g. (e.g. *Non-violent communication, Work that Reconnects, healthy diet, Herbal Medicine, Conflict Resolution*)
- The importance of vibrant, well-connected community (*4 generations model, transition towns etc.*)
- Health & wellbeing

<https://knowledgebase.permaculture.org.uk/practical-solutions/health-and-well-being>

- Finance & Economics (e.g. real wealth, money and alternatives,)

<https://knowledgebase.permaculture.org.uk/practical-solutions/finance-and-economics>

- Land Tenure & Community Governance

<https://knowledgebase.permaculture.org.uk/practical-solutions/land-tenure-and-community-governance>

- Culture & Education (including learning from nature)
<https://knowledgebase.permaculture.org.uk/practical-solutions/culture-and-education>
- Communication skills
- Decision making (*e.g. consensus & Sociocracy*)
-