

Index

- Abacus 443
- Accidental release 355
- Acetaldehyde 316, 445
- Acetic acid 286, 288
- Acidic 147, 307, 312
- Acid catalyst 244
- Acid rain 242, 343, 420
- Adaptation (of bacteria) 284, 303, 427
- Addiction 13, 410
 - artificial 6, 162, 272 312 , 313, 395, 397, 398, 414, 448
 - natural 313, 319, 320, 321, 322, 326, 398
- Absorption 210, 217, 235, 236, 413
 - air conditioner 228
 - efficiency 255, 259
 - energy 251, 254, 263, 279
 - heat 226
 - refrigeration 8, 144, 192, 209, 217, 219, 220, 230, 231, 236, 249, 416, 417, 437
 - solar 8, 226, 245, 246, 257, 264, 267, 268, 279, 307, 422, 415, 416, 446
- Additives
 - Artificial 6, 162, 272, 312, 313, 395, 397, 398, 414, 448
 - Natural 313, 319, 320, 321, 322, 326, 398
- African 23
- Agriculture 160, 161, 170, 198, 292, 451, 456
- Air emission 317, 370
- Air pollution 162, 202, 215, 248, 317, 318, 389, 426
- Alcohol 204, 205, 315
- Algae 200, 202, 438
- Allergic reaction 89, 316, 317
- Allergic skin disease 317
- Amino acid 287
- Ammonia 5, 84, 143, 187, 189, 190, 191, 192, 195, 197, 198, 200, 202, 209, 210, 214, 220, 221, 223, 224, 248, 285, 357, 413, 414, 426, 447
- Antibiotic
 - artificial 116, 147, 161, 169, 170, 176, 179, 395, 433
 - natural 132, 147
- Anti-oxidants 83
- Aphenomenal 2, 3, 5, 27, 37, 46, 52, 74, 79, 106, 111, 125, 133, 134, 139, 148, 149, 158, 160, 163, 168, 174, 177, 182, 212, 246, 249
 - forces 28
 - model 27, 31, 43, 47, 49, 65, 131, 151, 388, 393
 - Premises 107, 150, 159
 - Ranking 141, 142
 - reasoning 147
 - science 388
 - source 154
- Aphenomenality 106, 135, 151, 158, 179, 390, 423
- Aristotle 19, 20, 22, 23, 24, 27, 31, 32, 56, 70, 138

- Assessment
 - economic 387
 - sustainability 212
- Asthma 83, 312, 317
- Avalanche theory 107
- Bacteria 116, 147, 169, 199, 200,
 - 283–286, 288, 290, 298,
 - 300–303, 390, 395, 427
- acidogenic 286, 290
- acetogenic 286, 287, 293
- anaerobic 386, 288
- methanogenic 288
- Bee (honey bee) 124, 160–162, 167,
 - 169–173, 532, 434, 437, 442,
 - 446, 449
- Bernouilli 105, 157
- Bifurcation 28, 119, 163, 180,
 - 402, 403
- Biodiesel 325, 533
- Biodiversity 161, 342, 371, 372
- Bisphenol 370
- Breast cancer 19
- Carbon 288, 394, 436
- Carbon dioxide 12, 115, 192, 196,
 - 213, 285–287, 355, 370, 447
- Carbon monoxide 243
- Carcinogen 84, 316, 317, 421
- Carnot cycle 96, 104, 105, 157,
 - 228–230, 234
- Catalyst 115, 119, 126, 129, 153,
 - 243, 343, 376, 377, 397
- Catalytic reaction 119, 286, 376
- Chaos 179, 403, 438, 440, 443
- Chaotic 2, 45, 86, 102, 103, 148,
 - 155, 443
- Characteristic time 51, 58, 73
- Chloride
 - ammonium 187, 196, 197, 198
 - cupric 127, 436
 - lithium 92, 451
 - poly vinyl 451
 - sodium 92, 196
- Cholesterol 165
- Chlorogenic acid 165
- Cigarette 88, 128, 398
- Clean energy 12, 341, 370, 394
- Climate change 182, 244, 343, 440
- CO₂ 118, 119, 120, 127, 187,
 - 195–197, 199, 204, 205,
 - 286, 341, 343, 354, 368,
 - 370, 372, 383, 384,
 - 397, 451
- convertible 119
- industrial 126
- non-convertible 119
- organic 126
- COP 8, 209, 226, 228–231, 235, 236
- Coal 4, 117, 185, 186, 193, 242, 363,
 - 364, 419
- Cobalt 289, 431
- Coke 83, 128
- Combustion 4, 45, 97, 117, 119, 186,
 - 233, 242, 243, 318, 343, 347,
 - 442, 451
- efficiency 236, 237
- Compressive strength 337
- Convection 117, 233, 240,
 - 275, 441
- Cooking 190, 192, 326, 421, 433,
 - 438, 456
- Copper 119, 242, 255, 256, 257, 259,
 - 274–277, 306
- Corn 128, 164, 167, 168, 398, 449
- Corrosion 214, 248, 409
- Cracking 243
- Criterion 30, 135, 140, 145, 158, 160,
 - 177, 420
- sustainability 177, 179, 401, 440
- reality 140
- Crude oil 162, 163, 243, 272, 389,
 - 391, 394, 395, 397
- Dark matter 19
- DDT 82, 84, 85, 118, 171, 432, 435
- DEA 397
- Death 33, 40, 43, 86, 115

- Desalination 5, 6, 8, 84, 187, 189, 192, 194–199, 202, 376, 383–385, 409–411, 426, 429, 430, 440, 447, 451, 457
- Developed countries 419
- Developing countries 160, 342, 345, 352
- Diabetes 126, 389, 391
- Diarrhea 89
- Diffusion 114, 117, 347, 353, 369
- Dimensionality 67, 69, 136
- Dioxin 83, 84, 127, 318
- DNA 168, 171, 362, 429, 434
- Durability 84, 141, 313
- Drinking water 193
- Ecology 313
- Economic development 128, 342, 400
- Economic growth rate 344, 345, 397
- Economic system 343
- Economics of intangibles 401, 405, 408, 410, 422
- Ecosystem 6, 12, 78, 84, 124, 160, 167, 168, 199, 200, 202, 245, 284, 293, 411, 438, 448, 449
- Efficiency 235, 238, 381
- Einstein, Albert 18, 93, 97, 106, 133, 159, 429, 435, 436
 - refrigeration cycle 8, 209, 218, 220, 221, 223, 225, 226, 237, 245, 249, 426, 453, 455
 - box 13, 388
 - relativity 44, 133, 134, 159, 161, 445
- Electrical energy 81, 106, 137, 160, 207, 232, 234, 235, 345, 363, 395
- Electricity
 - household 207
 - nuclear 348, 350, 352, 365, 432, 449
- Electromagnetic 92, 124, 172, 179, 244, 421, 429, 444, 456
- Irradiation 106, 160, 171
- Cooking 431
- Energy balance 7, 78, 86, 94, 101, 112, 114, 117, 121, 154, 426, 444
- Energy consumption 217, 343, 347, 370, 432
- Engineering approach 99, 117, 429
- Enron 82, 85, 436
- Entropy 86, 98
- Environmental impact 241, 342, 366, 369, 420, 431, 449
- Environmental sustainability 121, 133, 339, 355
- Enzyme 174, 286, 289, 398
- EPA 193, 194, 358, 437, 457
- Ethanol 204, 205, 206, 430, 432, 441, 449, 456
- Ethylene glycol 271, 448
- Eurocentric 20, 21, 23, 26, 27, 28, 47, 55, 406, 408
- Evolution 49, 51, 62, 74, 440, 452
- Farming 161, 176, 179, 198
- Fatty acid 286, 287, 292
- Fermentation 206, 207, 286, 287, 290, 437, 438
- Fertilizer
 - chemical 12, 84, 85, 162, 176, 177, 180, 292, 389, 395
 - organic 153, 177
- Filter 197, 409
- Fish 202, 314, 356, 431, 449, 433
- Fission 358
- Flue gas 187, 232
- Fluorescent light 83, 144
- Formaldehyde 83, 313, 314, 316, 317, 435, 436, 445
- Freezing point 270, 271
- Fresh water 192–194, 196, 198, 201, 426
- Fructose 150, 152, 153, 166, 176, 320
- Fuel cell 189, 192, 203, 204, 214, 215, 377, 378, 395, 427, 430, 442, 348
 - hydrogen 9, 384

- DAFC (direct alcohol fuel cell) 204
 DEFC (direct ethanol fuel cell) 205
- Galaxy 30
- Galileo 15, 26, 31, 39, 56, 70,
 138, 438
- Genetic Engineering (GE) 86, 125,
 162, 167, 168, 434, 450
- GDP 344, 345
- Global warming 1, 12, 62, 78, 126,
 182, 244, 245, 343, 357,
 366–368, 371, 372, 433
- Global climate change 244
- Glucose 150, 152, 176, 297, 320
- Glycol 143, 271, 297, 448
- Gravity 19, 38, 56, 66, 70, 71,
 138, 153
- Green revolution 177
- Greenhouse effect 242, 208
- Greenhouse gas 355, 365, 426
- Green house pollution 169, 245
- Ground water 193, 355, 373
- Habitat 124, 178, 199, 200,
 202, 355
- Health effects 171, 362, 421
- Heart failure 83
- Heart disease 90
- Heat dead 104, 156
- Heat death 86, 136, 167, 173,
 395, 452
- Heat engine 210, 226, 230, 231,
 234, 456
- Heat transfer 226, 228, 233, 235,
 237, 240, 257, 260, 270–272,
 275, 277, 280, 427, 434
- Heating value 78, 140–142, 144,
 191, 417, 420, 421
- Heavy metal 8, 202, 291, 305, 306,
 308, 409, 438, 444, 449, 458
- Helium 354
- Heterogeneity 174, 309
- Heterogeneous 2, 102, 149, 155
- Holistic 124, 140
- Honey 124, 126, 127, 140, 141, 146–
 148, 150–153, 160–163, 167,
 169–180, 320–322, 327–340,
 388–390, 394, 395, 440, 446
- HSSA Syndrome 151, 167
- Hydrochloric acid 196
- Hydrogen 9, 150, 174, 192, 203, 204,
 286–288, 292, 294, 354, 369,
 375, 376, 384
- Hydrogen fuel cell 9, 376, 377
- IAPV (Israeli acute paralysis virus)
 173
- Incandescent light 82, 144, 447
- Information age 11, 32, 35, 98, 387,
 388, 403, 409, 410, 422, 440,
 441
- Information theory 112
- Infrared technique 174
- Jevons 64, 442
- Kelvin 99, 104, 136, 153, 157
- Knowledge-based 29, 440, 441
- Life cycle 85, 112, 355, 364, 368,
 411, 412, 413, 414, 417
- Lung cancer 83
- Mass balance equation 94–96, 98,
 148, 179
- Maxwell 19, 20, 105
- MEA 397
- Mercury 22, 126, 127, 435
- Molybdenum 289
- Momentum 87, 98, 107, 109, 110,
 111, 112, 114, 117, 179
- Monitoring 11, 429, 440, 456
- Natural gas 127, 196, 197, 203, 209,
 242, 343, 344, 363, 364, 377,
 397, 414, 420, 433, 456, 457
- Natural pathway 78, 141, 142,
 144, 211, 283, 285, 306, 318

- Natural process 1–4, 36, 47, 49, 61, 66–68, 73, 74, 86, 93, 102, 103, 115, 116, 117, 137, 148, 149, 153, 155, 156, 163, 175, 185, 197, 199, 213, 247, 248, 285, 319, 354, 394, 422
- Natural traits 2, 101, 154, 319
- Nature science approach 66, 67, 173
- Nature science 38, 55, 66, 69, 71, 179, 181, 393
- Nervous system 116, 435
- Newton, Sir Isaac, 13, 18, 19, 34, 36–42, 44, 49
- Newtonian calculus 44, 40, 42, 56, 59
- Newtonian laws of motion 31, 36, 38, 39, 40–42, 44
- Newtonian mechanism 59, 60, 105, 107, 109, 112
- Newtonian fluid 157
- Nickel 119, 242, 243, 255, 274, 275
- Nobel prize 19, 136
- Non renewable 4, 185, 236, 409, 410
- Nuclear energy
 - sustainability of 341, 342, 355, 361–363
 - value 343
 - consumption of 347
 - capacity 352
- Olive oil 132, 142
- Onion skin 306
- Organic matter 190, 200, 205, 287, 288, 292, 293, 442, 454
- Organic products 132, 318, 420
- Organic waste 189, 200, 284, 285, 293, 294, 439, 453
- Ozone 218, 244, 245
- Ozone layer 218, 420, 439
- Paradigm shift 9, 12, 126, 457
- Particleboard 317, 324, 337, 338, 431, 436
- Pathway analysis 241, 249, 421, 426, 444
- Permeability 171, 172
- Photovoltaic 8, 12
- Photo system 12, 116, 202, 343
- Platinum 203, 243, 296, 297
- Plutonium 346, 362
- Poiseuille 105, 153, 157
- Population 63, 190, 344, 345, 419
- Propaganda 17
- Psychrophilic 283, 284, 290, 293, 294, 298, 301–303, 414, 434, 446, 447
- Renewable energy 9, 185, 236, 364, 368, 394, 410, 429, 430, 436, 438, 445, 450, 451, 456, 458
- Renewable source 4, 186, 269
- Scattered solar radiation 252
- Silica 165, 256
- Silicate 315
- Silicon 12, 296, 315, 394
- Soap 142, 143
- Soap-free soap 143
- Sulfuric acid 362, 369, 379
- Sustainability
 - criterion 78, 177, 401, 444
 - true 8, 77, 78, 393, 426, 443
 - environmental 121, 133, 339, 355
- Synthetic
 - Adhesive 9, 313, 314, 319
 - Natural 8, 118, 213, 313
 - Polymer 143, 306, 313, 319
 - Product 9, 305, 306, 318, 354, 373
- TEA 397
- Thermal conduction 17
- Thermal conductivity 277

464 INDEX

- Tobacco
 - industries 88
 - processing 397
- Total radiation 252, 262, 273
- Uranium 342, 346, 347, 352, 353
 - enrichment 340, 347, 354, 369, 455
 - natural 373, 347, 362, 368, 373
 - radiation 457
 - reserve 352, 353
- Viscosity law 105, 158
- Volatile organic 205, 316, 317, 441, 450
- Wall street journal 436
- Waste vegetable oil 245, 248, 257, 259, 260, 261, 263, 264, 266, 267, 268, 277–282, 427
- World war I 33
- World war II 372