

INDEX

- abstract
 - preparation of, 82
 - science fair project, 5
- accuracy, judging criteria, 88
- adult sponsor/safety assessment form, 110. *See also* mentor
- analysis, scientific method, 5
- animal tissues
 - form for, 119
 - science fair project development, 56–57
- approval form, 113
- backboard, preparation of, 82–84
- behavioral sciences, topic categories, 11–12, 15
- bell-shaped curve, statistical method, 75–76
- biochemistry, topic categories, 12, 15
- botany, topic categories, 12, 15
- brainstorming, topic selection, 23–24
- category approach, topic selection, 11–13
- chemistry, topic categories, 13, 16
- clarity, judging criteria, 89
- computer graphing software, 73
- computer science, topic categories, 13, 16
- conclusions, scientific method, 5
- control group
 - experimental plan development, 64–65
 - scientific method, 5
- controlled substances, science fair project development, 56–57
- conversion tables, measurement, 92–94
- creativity, judging criteria, 88
- current issues, topic selection, 38–43
- data, 68–79
 - flowcharts, 77–78
 - measurement requirements, 68–69
- pie charts, 79
- qualitative/quantitative data analysis, 68
- science fair project, 5
- statistical method, 72–77
- tabulating and graphing, 69–72
- time lines, 77
- deadlines, science fair project development, 50
- dependent variable, scientific method, 5
- Discovery Channel Young Scientist Challenge, 6
- display preparation, 80–86
 - abstract, 82
 - backboard, 82–84
 - report, 80–81
 - restrictions, 85–86
 - science fair project, 5
- earth science, topic categories, 13, 16
- emergency kit, science fair preparations, 87
- empirical rule, statistical method, 75
- engineering, topic categories, 13, 16
- English conversion tables, 92–94
- environmental science, topic categories, 13, 17
- erroneous hypothesis, failed experiments, 66–67
- experiment
 - conducting of, 65–67
 - experimental plan development, 64–65
 - goal development, 63–64
 - scientific method, 5
- final analysis, failed experiments, 66
- flowcharts, data presentation, 77–78
- forms, 109–119
 - adult sponsor/safety assessment form, 110
 - animal tissues, 119
 - approval, 113
 - Human Subject Form, 116
 - Qualified Scientist Form, 115
 - Regulated Research Institutional/Industrial Setting Form, 114
 - research plan, 111–112
 - Vertebrate Animal Form, 117–119
- frequency distribution, statistical method, 74
- gerontology, topic categories, 12, 15
- graphing software, 73
- graphs, data analysis, 69–72
- hazardous substances, science fair project development, 56–57
- health. *See* medicine and health
- Human Subject Form, 116
- human subjects, science fair project development, 53–55
- Human Tissue Form, 119
- hypothesis
 - erroneous, failed experiments, 66–67
 - scientific method, 4
 - statement of, 62
- independent variable, scientific method, 5
- Institutional Review Board (IRB) forms of, science fair project development, 52
- human subjects, 53
- Intel International Science and Engineering Fair (ISEF), 1, 6, 52, 55–56, 80, 83, 85, 88
- Internet, topic selection source, 36–38
- interview, science fair preparations, 89–91
- journal
 - samples of, 98–108

- journal (*continued*)
 - science fair project development, 50–51
- judging criteria, science fair preparations, 88–89
- knowledge advancement, judging criteria, 89
- life sciences, topic categories, 11–13, 15–16
- line graph, data analysis, 70
- local issues, topic selection, 43–48
- mathematics, topic categories, 13, 17
- mean, statistical method, 72–74
- measurement conversion tables, 92–94
- measurement requirements, data, 68–69
- median, statistical method, 74
- medicine and health, topic categories, 12, 15
- mentor
 - adult sponsor/safety assessment form, 110
 - science fair project development, 57–59
- metric conversion tables, 92–94
- microbiology, topic categories, 12, 16
- mode, statistical method, 74
- nonhuman vertebrate subjects,
 - science fair project development, 55–56
- originality, judging criteria, 88
- past experiences, topic selection, 24–30
- pathogens, science fair project development, 56–57
- percentile, statistical method, 74–75
- physical sciences, topic categories, 13, 16–17
- physics, topic categories, 13, 17
- pie charts, data presentation, 79
- presentation, of proposal, science fair project development, 59
- problem, scientific method, 4
- procedural errors, failed experiments, 66
- procedure, scientific method, 4–5
- project journal
 - samples of, 98–108
 - science fair project development, 50–51
- proposal presentation, science fair project development, 59
- purpose, scientific method, 4
- Qualified Scientist Form, 115
- qualitative/quantitative data analysis, 68
- recombinant DNA, science fair project development, 56–57
- Regulated Research Institutional/Industrial Setting Form, 114
- report
 - preparation of, 80–81
 - science fair project, 5
- research
 - goal development, 63–64
 - scientific method, 4–5
- research plan forms, 111–112
- rules, science fair project development, 50
- science fair
 - attendance at, topic selection, 48–49
 - described, 5–6
 - science fair preparations, 48–49
 - interview presentation, 89–91
 - judging criteria, 88–89
 - project setup, 87–88
 - specialized awards, 91
 - science fair project, defined, 3–5
 - science fair project development, 50–59
 - human subjects, 53–55
 - mentor, 57–59
 - nonhuman vertebrate subjects, 55–56
 - pathogens, animal tissues, recombinant DNA, controlled substances, and hazardous substances, 56–57
 - project journal, 50–51
 - proposal presentation, 59
 - rules and deadlines, 50
 - Scientific Review Committee (SRC) and Institutional Review Board (IRB) forms, 52
 - Science Service, Inc., 6
 - scientific abstracts, topic selection source, 36
 - scientific method
 - blueprint of, 4–5
 - judging criteria, 88
 - science fair project, 3
- Scientific Review Committee (SRC)
 - forms of, 52
 - science fair project development, 50
- scientific supply companies, listing of, 95–97
- social sciences, topic categories, 11–12, 15
- space science, topic categories, 13, 16
- specialized awards, science fair preparations, 91
- standard deviation, statistical method, 75–77
- statistical method, 72–77
- subcategory approach, topic selection, 14–17
- supply companies, listing of, 95–97
- tabulation, data analysis, 69–72
- thoroughness, judging criteria, 88
- time lines, data presentation, 77–78
- tissues. *See* animal tissues
- topic selection, 10–49
 - brainstorming, 23–24
 - category approach, 11–13
 - current issues, 38–43
 - Internet, 36–38
 - key to, 10
 - life sciences exercises, 17–20
 - local issues, 43–48
 - past experiences, 24–30
 - past innovations or inventions, 30–31
 - personal interests, experiences, and resources, 11
 - personal resources, 33–36
 - personal skills and abilities, 31–33
 - physical sciences exercises, 20–23
 - science fair/workshop attendance, 48–49
 - scientific abstracts, 36
 - subcategory approach, 14–17
- variables
 - experimental plan development, 64
 - scientific method, 5
- Vertebrate Animal Form, 117–119
- vertebrate subjects, nonhuman, science fair project development, 55–56
- zoology, topic categories, 12–13, 16