List of possible subjects for a homework (max 3 pages, if possible with figures)

1. Methods of science research: Hypothesis, postulates, laws, theory.
2. Physical law should have mathematical beauty (P. A. M. Dirac).
3. Are physical experiments in laboratory just a reproduction of nature?
4. Symmetry in the Universe. Is preferred the right handed to the left handed and matter to anti-matter?
5. The highest, the smallest in the nature. The dimension of different things.
6. Why do we need of "Bureau International des Poids et Mesures (France)"?
7. How does the ant know the way home with no guiding clues on the desert plain?
8. Space measurement, from first measurements to GPS.
9. Time measurement, from a walk under the moon to the modern atomic clocks.
10. Motion as fundamental concept of human existence.
11. Speed measurements from smallest mobiles to light velocity.
12. High speed video camera can reveal interesting features of fast motion.
13. Gravitational mass versus inertial mass.
14. The physical problems of Egyptians pyramid builders.
15. Roller coaster and circular motion.
16. Ballistics and curvilinear motion.
17. Temperature measurements, from absolute zero to supernova.
18. Barometric formula for the air pressure.
19. Isaac Newton's "Philosophiæ Naturalis Principia Mathematica".
20. Kepler laws for the solar system.
21. Meteorites, asteroids orbiting around Earth and hypothesis of dinosaurian disappearances.
22. Satellite stability and geostationary satellites for telecommunications.
23. The physics of car accidents.
24. The car that runs with oil versus the car that runs on water.
25. The self-righting Segway Human Transporter.
26. Galilean fingerprint on the modern physics.
27. XXI century new physical experiments.
28. The physics of ice skaters.
29. Observation and applications of centrifugal inertial forces.
30. Observation of Coriolis inertial force. Equator experiments.
31. Sky-scrapers damped oscillations.
32. Resonance phenomena in Nature: Oscillations of bridges.
33. Resonance phenomena in Nature: Oscillations of high buildings.
34. Wave interference in nature.
35. How can a building sink into the ground? The physics of earthquakes.

36. Mega-structures: From roman aqueducts to modern long bridges.
37. Mega-structures: New islands.
38. Mega-structures: Conference auditoriums.
39. Mega-structures: modern stadiums.
40. Building to height. Special problems that must be solved.
41. Monumental buildings: Seven Wonders of the Ancient World.
42. Monumental buildings: Ancient Greek Pantheon and Roman baths of Caracalla.
43. Monumental buildings: Forbidden City, the Chinese imperial palace.
44. Monumental buildings: The architecture of churches versus mosques.
45. Monumental buildings: Kremlin - Russian architecture.
46. Monumental buildings: Taj-Mahal - the Indian love declaration.
47. Monumental buildings: Middle ages citadels and castles.
48. Monumental buildings: Special architecture of Eiffel Tower.
49. Monumental buildings: Statue of liberty from New York.
50. Monumental buildings: Nature and buildings. Gaudi's Sagrada Família.
51. Monumental buildings: The future challenge.
52. Building materials. From wood to modern steel reinforced concrete.
53. Sounds produced by musical instruments with strings.
54. Sounds produced by musical instruments with membranes. 2D interference patterns.
55. Sounds produced by musical instruments with air columns.
56. Doppler Effect, a way to measure the Universe dilatation.
57. Acoustics of auditorium rooms.
58. Physiological effects of infrasounds.
59. Generation of ultrasounds and ultra-acoustic applications.
60. Heat and Temperature. How can the beetles detect a distant fire?
61. Thermal radiation detectors. From rattlesnake face to room detectors.
62. Thermal expansion and reactive engines.
63. Night vision. Thermographic camera.
64. Thermodynamic principles. Perpetuum mobile.
65. Thermal insulation of nowadays buildings.