Chapter 2
Racing on the ceiling, swimming through syrup
(fluids)

Here are the references and web links for the stories in the book. Recently added references are highlighted. For updates to those stories and for all the new stories, go to

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Chap 2 archives part A (1-40)
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http://www.flyingcircusofphysics.com/News/NewsDetail.aspx?NewsID=59
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Chap 2 archives part B (41-76)
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http://www.flyingcircusofphysics.com/News/NewsDetail.aspx?NewsID=60
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Chap 2 archives part C (77-154)
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http://www.flyingcircusofphysics.com/News/NewsDetail.aspx?NewsID=61
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Chap 2 archives part D (155-end)
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http://www.flyingcircusofphysics.com/News/NewsDetail.aspx?NewsID=38

Jan 2015

2.1 Race cars on the ceiling

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos
http://www.youtube.com/watch?v=T1VQLSgok78 Discovery Channel piece about the McLaren F1
http://www.youtube.com/watch?v=Pq4tuT_l36g Testing aerodynamics of the F1

Photos and discussion
http://www.chaparralcars.com/2e.php Official chaparral website
http://www.jimhayes.com/Archives/hall1.jpg Photo
http://www.popsci.com/popsci/futurecar/06f09aa138b84010vgnvcm1000004eecbccdrcrd/3.html Mentions upside down car and shows the Chaparral 2E
http://people.bath.ac.uk/pb235/aero/history.htm Shows Jim Hall's "sucker car" and a car with an adjustable wing
http://ffden-2.phys.uaf.edu/211.web.stuff/Langman/phys211-ec.htm Shows Hall's chaparral that could hug the turns.
www.f1journal.com/f1_teknik/tek_acv_030501a.html
http://www.motorbooks.com/Store/UserDirs/motorbooks.com/coverimages/139632.jpg Photo

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2.2 Drafting

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http://www.youtube.com/watch?v=RjDGjQ14Sjo Video: Bike drafting behind a truck. Very, very dangerous but really interesting.
http://www.nascar.com/2006/news/headlines/cup/02/14/stronger.penalties/index.html Bump drafting photo plus news story
http://www.youtube.com/watch?v=j451KAvCUTQ&mode=related&search= When drafting goes badly
http://www.youtube.com/watch?v=tWZkDRRkkTY Video animation
http://www.aerospaceweb.org/question/aerodynamics/q0092.shtml Photos plus discussion
http://www.youtube.com/watch?v=ypGlreJYFWM Drafting is used in the Tour de France

References

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2.3 Aerodynamics of passing trains

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=Z5stmjA74-s&feature=related Fast train almost runs down two people. Watch the airflow as the train passes them.
http://www.youtube.com/watch?v=EqJAM8A8H-o Video of two fast trains passing each other in opposite directions. Note the uncontrollable motion of the camera.
Videos of Snow plowing by train
http://www.youtube.com/watch?v=QenN5DVuLtw Snow plowing by train
http://www.youtube.com/watch?v=Ww-7X-LNMdU

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2.4 Collapse of the old Tacoma Narrows Bridge

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Movies and newsreels
http://www.youtube.com/watch?v=j-zczJXSxnw
http://www.youtube.com/watch?v=HxTZ446tbzE Newsreel with narration and music
http://video.google.com/videoplay?docid=-8848571026603178234&q=tacoma+narrows+bridge+collapse
Another newsreel and more bridge-breaking music
http://www.youtube.com/watch?v=P0Fi1VcbpAI
http://www.youtube.com/watch?v=i_MQ61vyaSM Vortex shedding by a cylinder
http://www.youtube.com/watch?v=CB2aWiesq0g Same here
http://www.youtube.com/watch?v=SuZRi0q9MAg another one

Still photos
http://www.ketchum.org/bridgecollapse.html

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2.5 Aerodynamics of buildings

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2.6 Kites

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http://www.youtube.com/watch?v=6QYaJo5Uzuo Video, five kites in a "dance"
http://www.youtube.com/watch?v=2BzGeKmgKUA&mode=related&search= Video, more. I love this stuff.
http://www.youtube.com/watch?v=mttPruk7qGA&mode=related&search= Even more video
http://www.youtube.com/watch?v=M-9SfukD7s4&mode=related&search= Indoor kite
http://www.youtube.com/watch?v=LDpLrkiD8Tc&mode=related&search= More indoor kites. Someone please tell me who does this music.
http://www.youtube.com/watch?v=1SW_l5gLRwo&mode=related&search= Kite dancing

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2.7 Ski jumping

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http://www.youtube.com/watch?v=W-amNJqWpEo Video, watch his left leg and ski
http://www.youtube.com/watch?v=qkpo-zSOMDQ&mode=related&search= Video
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2.8 Speed of a downhill skier

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2.9 Boomerangs

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http://www.youtube.com/watch?v=YOnBy9rU43M&NR=1 Video, throwing a boomerang
http://www.youtube.com/watch?v=a5EggR_4piE Video, world's smallest boomerang
http://www.youtube.com/watch?v=VAp1rr6Lgrg Video

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2.10 Throwing cards

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=o16DcNuXHcs Video, how to attack various pieces of fruit with a card

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2.11 Seeds that spin

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.istockphoto.com/imageindex/574/8/574889/Helicopter_Seed_Pod.html Photo
http://waynesword.palomar.edu/plfeb99.htm Wayne’s Word: An on-line textbook of natural history, which has many fine pages to explore. This page is about the different ways seeds and fruits can be dispersed by wind. Use the menu at the bottom to find various individual pages, such as the one about the ones that rotate like helicopters:
http://waynesword.palomar.edu/plfeb99.htm#helicopters

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2.12 Flying snakes

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://homepage.mac.com/j.socha/aerial_images/paradisi/paradisi_air_gallery_1.html Photos and discussion

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2.13 Air drag on tennis balls

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2.14 Veering a football around a defensive wall

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http://www.youtube.com/watch?v=iEjzHLlNais Video: excellent curved path
http://www.youtube.com/watch?v=RRqS-dKXHEM Lots of goals, some with remarkable curved paths
http://www.youtube.com/watch?v=jjyr1zXVjek Same here

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2.15 Golf-ball aerodynamics

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://archives.cbc.ca/IDC-1-41-1723-11853/sports/golfing/clip3 Jan Ingram and me, in an audio clip from the CBC show Quirks and Quarks.

http://www.cookeassociates.com/seesite/BALLS/balls_students_background.htm
golf ball (go down to the photos showing smoke tracers moving past a tennis ball)

http://www.youtube.com/watch?v=XYU6jWmp7k0 Instruction video on how to hit the ball to launch it into a high flight

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2.16 Baseball aerodynamics

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http://www.youtube.com/watch?v=V26Fbsrpcus How to throw a cuveball
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http://www.youtube.com/watch?v=kIm0TMdLg0M How to throw a two-seam fastball
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2.17 Cricket aerodynamics

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http://www.youtube.com/watch?v=JrWJ5WOwHmA&mode=related&search= Video
http://www.youtube.com/watch?v=wjZdaVmz_kg Video, bowling in cricket

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2.18 Birds flying in V formation

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.aerodyn.org/Annexes/Birds/birds.html Photo plus discussion
http://www.fotosearch.com/FSP188/086002/ Photo

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2.19 Speed swimming in syrup

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.20 Contrails

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos
http://www.youtube.com/watch?v=6jCS8jPVU-o&feature=related You can the distance between the wings and the contrails
http://www.youtube.com/watch?v=ZRxN6vU5juE&feature=related Here the distance is not as much
http://www.youtube.com/watch?v=IUc1Z_vXkPw
http://www.youtube.com/watch?v=jC6iopJ4UAE&feature=related
http://www.youtube.com/watch?v=ormqIqbxgsI
http://www.youtube.com/watch?v=AWwPygBqmCo
http://www.youtube.com/watch?v=mPPQDl0QLhc

Photos
http://www.es.lancs.ac.uk/hazelrigg/amy/Home.htm National Contrail Network home page
http://commons.wikimedia.org/wiki/Image:Contrail_with_jet_(aka).jpg Photo. Note gap between jet engine and the contrail
http://www.victoriaweather.ca/clouds.php?image=contrail Photo, contrail and its shadow on clouds
http://www.atoptics.co.uk/ Many photos and explanations of atmospheric optics
http://www.lounge.org/elvis/contrail_and_shadow_41000.jpeg Photo, contrail and its shadow

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2.21 Inward flutter of a shower curtain

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=AvLwqRCbGKY Coanda effect on a spoon near flowing water
http://www.youtube.com/watch?v=o_-Eph9w6_A Coanda effect with a spoon in a stream of water
http://www.straightdope.com/classics/a2_104.html and
http://www.straightdope.com/columns/010810.html Cecil Adams, in his "Straight Dope" columns, discusses the shower curtain effect, with a different conclusion from me.

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2.22 Prairie dog and giant ant nests

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.
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http://www.youtube.com/watch?v=zJNSfp3o-uA Kids video about prairie dog's sounds but it also shows the burrows.
http://www.youtube.com/watch?v=JLQ70JJpa0M Video about vacuuming up the prairie dogs from the homes (they are not hurt).
http://www.proseandphotos.com/AZ-35-18-b_small.jpg Photo of prairie dog sitting on the mound entrance to its home
http://www.adventure-tours-australia.com/australian-outback-photos/ant-hill.html Photo magnetic ant hill in Australia

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2.23 Bathtub vortex

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

To see me demonstrate the bathtub vortex on television, go to
http://www.gumfrog.com/dailyplanet and use Username: previewguest
Password: d1sc0very (note the two numbers)
I suggest that you click the box that allows the computer to remember this information (or you may have to enter it several times)
Choose Jan 2008. Scroll down to Jan 22 / 08 . Click on "Fact of the Matter"

http://www.youtube.com/watch?v=VsrCOdDf2V0 Video: bathtub vortex is not controlled by the Coriolis effect
http://www.youtube.com/watch?v=gccduFJSisI This is the stuff shown to tourists. Can you spot how he makes the water drain the way he wants it to?

http://www.youtube.com/watch?v=1mdlDEK3VmU Same stuff. He makes a living showing the Coriolis effect at a location where the effect is actually zero.
http://www.youtube.com/watch?v=0g-BFJt8mpo Another person making a living showing an effect that does not exist.
http://www.youtube.com/watch?v=hPgq4AbLKyU Ink tracer in vortex in a water container, with the camera rotated by 90 degrees (bottom is to the right)
http://www.youtube.com/watch?v=fq3SFvXJnT0 Ink tracer in vortex

http://www.nbi.dk/~aanders/research.html Photos and description
http://www.dtu.dk/centre/BioCom/Research%20areas/Complex%20fluid%20flows,%20free%20surfaces%20and%20instabilities/Bathtub%20vortex.aspx?lg=print Photo plus description

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2.24 Vortex in a cup of coffee

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.25 Gathering of tea leaves, spinning of olives

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2.26 Meandering rivers

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.stacey.peak-media.co.uk/Year7/7-7Rivers/7-7Meanders/7-7Meanders.htm
River meander images

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2.27 Bird spinning in water

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2.28 Water climbing a spinning egg

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2.29 Circular water-flow pattern in a sink

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http://www.youtube.com/watch?v=f7LA0tXNWRg&feature=related hydraulic jump in an experimental tank
http://www.youtube.com/watch?v=dY1X_zOSUUE hydraulic jump in a water discharge canal
http://commons.wikimedia.org/wiki/Image:Hydraulic_jump_in_sink.jpg Photo of kitchen sink hydraulic jump
http://www.lmnoeng.com/Channels/HydraulicJump.htm Photo plus discussion of a hydraulic jump in a channel of flowing water
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http://www.amafca.org/AMAFCA%20Flood%20Photos.htm Photos
http://web.mit.edu/jeffa/Public/web/Surface%20Tension%20and%20the%20Hydraulic%20Jump_files/
Many photos of hydraulic jumps, including polygonal
http://www.youtube.com/watch?v=N9hyL79pSPI Underwater sand ripples, with hydraulic jumps

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2.30 Water level in canals

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2.31 Solitary waves

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.32 Tidal bores

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=PtUmLLlm7S0 Video of surfers riding the bore on the Severn River
http://www.youtube.com/watch?v=dX05gCni9Wg&mode=related&search= Another surf video
http://www.youtube.com/watch?v=3tYAZf2OMsk&mode=related&search= Video of Severn bore
http://www.youtube.com/watch?v=LQNxj9i9rNw&feature=related Another Severn surfing video
http://www.youtube.com/watch?v=Qc96txWJAOc&feature=related Another one, distant shot
http://www.youtube.com/watch?v=PBhcvMV2kqk&feature=related Series of photos and then video

Audio, photos, discussion
http://www.bbc.co.uk/wales/surfing/sites/features/pages/severn_bore06.shtml
http://www.bbc.co.uk/gloucestershire/interactive/interactive_map/gloucester/severn_bore.shtml
http://www.bbc.co.uk/gloucestershire/content/articles/2007/04/09/severn_bore_feature.shtml news item and nice photo
http://www.bbc.co.uk/radio4/science/extremebritain.shtml BBC Radio. If this site is still active, scroll down to the program "The Biggest Tide," which is about the bore on the Severn River, including some discussion of the surfing. The show is part of the series called "Extreme Britain," hosted by Mike Dilger.

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2.33 Tides

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.34 Tides in the Bay of Fundy

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://content.answers.com/main/content/wp/en/7/76/Bay_of_Fundy_High_Tide.jpg High tide at a point
http://content.answers.com/main/content/wp/en/c/cf/Bay_of_Fundy_Low_Tide.jpg Low tide at that same point

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2.35 Dead water

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2.36 Tornadoes

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos (warning, some mild cursing)

http://www.youtube.com/watch?v=xCI1u05KD_s Manitoba tornado

http://www.youtube.com/watch?v=DNL7ASvl4k4 Scarry stuff

http://www.youtube.com/watch?v=2iAI8W2X6zM Many tornado videos compiled, including a shot of a house being pulled apart. (The parking lot vortex is a dust devil, not a tornado, or the pickup truck that drives thorugh it would have destroyed. So is the playground vortex.)

http://www.youtube.com/watch?v=cJH4rylVATU&mode=related&search=

http://www.youtube.com/watch?v=EqajULQwi90&mode=related&search=

http://www.youtube.com/watch?v=UVppfnXtPZ4&mode=related&search=

http://www.youtube.com/watch?v=4pbqGsS5iB4 winds at 318 miles per hour!

http://www.youtube.com/watch?v=-nKGOjNh_lI Cameras inside a tornado

http://www.youtube.com/watch?v=WhfVwIjstRo Texas tornadoes

http://www.youtube.com/watch?v=5vEBiTTkpYU Witcha Falls, Texas

http://www.youtube.com/watch?v=rFeufWFPVm4&mode=user&search= tornado rips through trees

http://www.youtube.com/watch?v=zv8H-RTVGew F4 in Manitoba

http://www.youtube.com/watch?v=GrCLJuMerco Jarrell, Texas, 1997

http://www.youtube.com/watch?v=mUbR6TvpTO4 Tornadoes and the damage, including the damage path through a Wal-Mart. (The kids are playing in a dust devil, not a tornado)

http://www.youtube.com/watch?v=vo5Q48nV8SI

http://www.youtube.com/watch?v=5f3Nxiveyxc Two tornadoes
http://www.youtube.com/watch?v=kEUXr6FMtWk Big, violent Manitoba tornado
http://www.youtube.com/watch?v=B8n0jM9XKlo Slide show, with van Halen music.

Kansas tornado, with what looks like video from a flying car.
http://www.youtube.com/watch?v=tfxVQshzSS8&mode=related&search=
Video
http://en.wikipedia.org/wiki/Andover%2C_Kansas_Tornado Description of the tornado

photos and descriptions:
http://www.targetarea.net/var04.html
http://apod.nasa.gov/apod/ap050613.html
http://www.fishindog.com/images/tornado.jpg
http://www.greatdreams.com/weather/tornados.htm
http://www.worth1000.com/entries/153500/153529qVxu_w.jpg Photo of tornado and lightning from the cloud to one side of the tornado.

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2.37 Short story: Looking up into a tornado

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=668begWTof0 Driving into a weak tornado
http://www.youtube.com/watch?v=yTaWGF51Lrg Below a funnel

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Related reference
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2.38 Waterspouts and funnel clouds

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos:
http://www.youtube.com/watch?v=QfhBKIjHizk Multiple waterspouts
http://www.youtube.com/watch?v=lHGq23zfu5Q&mode=related&search= (Correct the audio: these are waterspouts, not tornados)
http://www.youtube.com/watch?v=WpeGHPk9hqo&mode=related&search=
http://www.youtube.com/watch?v=5Iyxg9OrE5I

Photos and discussions:
http://scijinks.jpl.nasa.gov/en/educators/weather_gallery.shtml
http://apod.nasa.gov/apod/ap050120.html
http://www.ghettodriveby.com/waterspout/
http://www.vantagepointguides.com/how_to/images/waterspout_weather.jpg

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2.39 Dust devils, fog devils, and steam devils

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Photos
http://www.nasa.gov/vision/universe/solarsystem/2005_dust_devil_prt.htm
http://media.graytvinc.com/images/dust+devil.jpg
http://www.gc.maricopa.edu/earthsci/imagearchive/dust_devils.htm

Video
http://www.youtube.com/watch?v=CQLCJFbABgg&feature=related Huge dust devil, with people on bikes riding through it and the camera operator walking through it

http://www.youtube.com/watch?v=u2gT9GRirN8&NR=1 Wal-Mart dust devil
http://www.youtube.com/watch?v=2rK-ctpFBz8&NR=1 Big dust devil develops at a baseball game
http://video.google.com/videoplay?docid=8999646699424115O1&q=dust+devils&hl=en
http://www.youtube.com/watch?v=YFwzNNEuOSY&mode=related&search= Dust devil (vortex) produced by a fire
http://www.youtube.com/watch?v=2SWTzZXc0sg Driving through a dust devil
http://www.youtube.com/watch?v=Kwa0ivfrcvE Whirlwind coming off a bonfire
http://www.youtube.com/watch?v=GtiDTT8JQsY More bonfire vortices, really good
http://www.youtube.com/watch?v=H37oeNVJUDM More of the bonfire vortices
http://www.youtube.com/watch?v=VDcRe1_bHjY Big dust devil at camping ground
http://www.youtube.com/watch?v=2iBjqFJsraM Paragliders picked up a whirlwind
http://www.youtube.com/watch?v=5Fw1qiAld2U&NR=1 Whirlwinds from a brush fire

Movies and other images of martian dust devils
http://science.nasa.gov/headlines/y2005/14jul_dustdevils.htm
http://antwrp.gsfc.nasa.gov/apod/ap050426.html Several photos run as a video.
http://www.msss.com/mars_images/moc/7_1_99_devils/
http://mars.jpl.nasa.gov/gallery/duststorms/
http://www.msss.com/mars_images/moc/lpsc2000/3_00_dustdevil/
http://www.lpl.arizona.edu/~lemmon/mer_dd.html

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2.40 Ring vortexes

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=UlrRywH_yUA&NR=1 Swimmer lying on the bottom of pool, blowing ring vortexes that buoy to the surface.
http://www.youtube.com/watch?v=bj6a4rdBueo&feature=related Another swimmer
http://www.youtube.com/watch?v=8bZ0Q3RG-YA&NR=1 Long-lasting ring vortex in water
http://www.youtube.com/watch?v=l2-LeBK17EY&feature=related Another swimmer and his ring vortexes
http://www.youtube.com/watch?v=TMCf7SNUb-Q&feature=related
http://www.youtube.com/watch?v=1zXeYHHZeCw&NR=1
http://ifm.zmaw.de/~wwwrs/WWK/UHH_WWK_Turb_singlevortex.gif Photo
http://www.youtube.com/watch?v=OrQKhCd1kyY Video
http://www.youtube.com/watch?v=lMLop6MIwUU&mode=related&search= Device that makes large smoke rings
http://www.youtube.com/watch?v=sWPGkYmEnOU&NR=1 Video smoke rings blown with cigarette smoke (smoking is very bad for you)
http://www.youtube.com/watch?v=x6FLDx3spFk Dolphin blowing ring vortices (be patient with the video)

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2.41 Siphons and toilets

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.toiletology.com/crapper.shtml Site about Thomas Crapper
http://www.toiletology.com/history-02.shtml

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2.42 Lizards walking on water

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Photos:
http://www.ri.net/schools/West_Warwick/manateeproject/Rainforest2/images/walk%20on%20water.jpg
http://news.bbc.co.uk/2/low/science/nature/4033725.stm BBC item with photos

Video:
http://www.youtube.com/watch?v=Qhsxo7vY8ac
http://www.youtube.com/watch?v=sVVcWafi-MU
http://www.youtube.com/watch?v=1wWh4LzWUPY
http://www.youtube.com/watch?v=vCGAkMzoKb8
http://www.youtube.com/watch?v=mBEansolk1A

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2.43 Lead bar floating in a boat

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.44 Floating bars and open containers

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.45 Hole in a dam, ship in dry dock

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.46 g-LOC in pilots

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2.47 Blood circulation in snakes, giraffe, and tall dinosaurs

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=QUJpvUygLRs&mode=related&search= Video of giraffe drinking from a pond.

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2.48 Did the sauropods swim?

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.49 Gastroliths in dinosaurs and crocodiles

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.dinosaurhunter.org/index.php?article_id=26 Photos plus description

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2.50 Coanda effect

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=S-SAQtODAQw Video, watch the flap be pulled upward by the Coanda effect (note, the Bernoulli principle is not involved).
http://www.youtube.com/watch?v=AvLwqRCbGKY Coanda effect with a spoon in a stream of water
http://www.youtube.com/watch?v=o_-Eph9w6_A Coanda effect with a spoon in a stream of water
http://www.smartsecondskin.com/img/African_bombardier_beetle.jpg Photo of the bombardier beetle spraying
http://www.failedsuccess.com/images/beetle2.jpg Photo of the bombardier beetle
http://www.mja.com.au/public/issues/177_11_021202/che10692_fm.html Photo of hand damaged by the bombardier beetle spray
http://www.youtube.com/watch?v=tpJ3asv3XMY Video of the bombardier beetle, part 1
http://www.youtube.com/watch?v=nFUIEuNeWw4 Video of the bombardier beetle, part 2
http://jnaudin.free.fr/html/repcotst.htm Coanda saucer, photos and plans for making
http://www.youtube.com/watch?v=aER2ExobzDU Video of a Coanda saucer
http://www.youtube.com/watch?v=ggUIJDgkSSs Video of a large Coanda saucer
http://www.youtube.com/watch?v=sdGVI7kJld0 Another video

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2.51 Teapot effect

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2.52 Ascents after deep diving

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2.53 Snorkeling by people and elephants

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=ywXYfLFapLY Video of swimming elephants, shot from underwater
http://www.youtube.com/watch?v=9M1CVLK8l50 Snorkling elephants
http://www.elephantnaturepark.org/news/0509b.htm
http://img2.travelblog.org/Photos/10149/53705/f/302193-Swimming-Elephant-0.jpg

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2.54 Deep diving, submarine escape

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http://www.youtube.com/watch?v=9m5jMXOg4MY Video of the Submarine Escape Training Tank.

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2.55 Lake Nyos disaster

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.waterencyclopedia.com/images/wsci_02_img0296.jpg Photos of the lake and scores of dead animals
http://globalchange.umich.edu/globalchange1/current/lectures/kling/killer_lakes/nyos.jpg Photo of the lake

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2.56 Short Story: House-hopping, and riding the skies in a lawn chair

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http://www.youtube.com/watch?v=bVq0u1BTGgE Car floated with helium balloons, breaks free and floats away. Is this real?
http://www.youtube.com/watch?v=PeJibXrE9g4&NR=1 No, of course it is not real.
http://www.youtube.com/watch?v=JQ1GlwPrmBI&NR=1 Again, it is not real
http://www.cnn.com/2007/US/07/10/flying.lawn.chair.ap/index.html Flying a lawn chair with helium balloons
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http://www.readthehook.com/images/issues/2006/0545/strange0543.gif A cartoon to go with the house hopping story; drawn by Deborah Derr McClintock
http://www.news.com.au/dailytelegraph/story/0,22049,22055031-5012895,00.html Note that there are multiple images available.
http://www.ktvz.com/global/story.asp?s=6759982&ClientType=Printable
http://www.youtube.com/watch?v=bSUBL4OQzrA Lifting a person via helium party balloons
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2.57 Flow of medieval cathedral window glass

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2.58 Strange viscous fluids

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Barcelona video on YouTube
http://www.youtube.com/watch?v=f2XQ97XHjVw

http://www.mie.utoronto.ca/labs/rheology/objectives.html Photo plus discussion

http://www.youtube.com/watch?v=t5hcTnntkVM Video of waves on a oscillating corn-starch slurry; holes pushed into the slurry remain and fingers can rise out of the slurry.
http://www.youtube.com/watch?v=WTCkVh9CWT8&mode=related&search= Video: Fingers grow out of an oscillating corn-starch slurry
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http://www.youtube.com/watch?v=nX6GxoiCneY Video: swelling of liquid upon emergence, the rod-climbing effect, and the leaping effect
http://www.youtube.com/watch?v=KcNWLIpv8gc Swelling of liquid upon emergence
http://www.youtube.com/watch?v=aY7xiGQ-7iw Tubeless siphon

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2.59 Soup reversal

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2.60 Bouncing liquid stream

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos

http://www.youtube.com/watch?v=IrVlq2AgwyA Kaye effect and rope coiling, excellent video

http://www.youtube.com/watch?v=nX6GxoiCneY Video: swelling of liquid upon emergence, the rod-climbing effect, and the leaping effect

http://www.youtube.com/watch?v=wmUx-1o3Lzs Kaye effect

http://www.nature.com/news/2006/060403/full/060403-10.html Article in Nature. Use the buttons in the caption to the figure to run the videos.

Photo

http://chaos.ph.utexas.edu/~thrasher/research/genfluid.html Click on the photo.

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2.61 Rod-climbing fluids

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http://www.youtube.com/watch?v=npZzlgKjs0I Video of the rod-climbing effect, really good
http://www.youtube.com/watch?v=nX6GxoiCneY Video: swelling of liquid upon emergence, the rod-climbing effect, and the leaping effect
http://web.mit.edu/nnf/research/phenomena/rodclimbing.html Discussion plus videos. Click on the video options
http://www.mie.utoronto.ca/labs/rheology/objectives.html Photo plus discussion

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2.62 Liquid rope coils

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2.63 Water waves

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2.64 Extreme and rogue waves

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Photos:
http://www.math.uio.no/~karstent/waves/index_en.html The photos embedded in the article may be slow to load, so be patient.
http://www.ifremer.fr/metocean/conferences/rogue_wave.htm Click on the photo to get an enlarged version with a description.
http://www.opc.ncep.noaa.gov/perfectstorm/rogue_wave2.jpg
http://www.msnbc.msn.com/id/5491071/ Photo plus description

http://www.ifremer.fr/web-com/stw2004/rw/index.html Many papers and abstracts at the rogue workshop 2004

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2.65 Waves turning to approach a beach

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2.66 Waves passes through a narrow opening

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http://video.google.com/videoplay?docid=6794478653908381414&q=DIFFRACTION&hl=en Video of water waves diffracting through a narrow opening
http://www.math.uio.no/~karstent/waves/index_en.html Aerial shot of ocean waves diffracting through an opening. The photos embedded in the article may be slow to load, so be patient.

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2.67 Seiches and sloshes

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2.68 Wakes of ducks and aircraft carriers

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http://www.eng.vt.edu/fluids/msc/gallery/gall.htm Photo of wake of aircraft carrier. Click on the various buttons to get other photos, including one from the Virginia Tech duck pond.
http://www.ifm.uni-hamburg.de/ers-sar/Sdata/oceanic/shipwakes/intro/index.html
http://www.ifm.uni-hamburg.de/ers-sar/Sdata/oceanic/shipwakes/intro/index.html Photo plus description
http://www.docksidereports.com/dangerous_ship_wakes.htm The danger of a smaller boat in the wake of a large ship

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2.69 Surfing

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=hDW_fe0WTH8&feature=related Huge wave
http://www.youtube.com/watch?v=WcEgnX-w3gg&mode=related&search= Surfing and Jimi Hendrix, can life get any better?
http://www.youtube.com/watch?v=pFkSzJ0khgk Way cool video
http://www.youtube.com/watch?v=s0Pw7vKtqpo Laird Hamilton surfing
http://www.youtube.com/watch?v=V4Rowo06XeI Video
http://www.destination360.com/central-america/costa-rica/costa-rica-surfing.php Photo

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2.70 Porpoise and dolphin motion

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http://www.youtube.com/watch?v=oP8N88VU7a0&feature=related
http://www.youtube.com/watch?v=OgD0t1NidF4 Video of dolphin playing in boat wake
http://www.youtube.com/watch?v=wqsqmi2mhtQ&mode=related&search= Video of dolphins jumping in boat wake
http://www.youtube.com/watch?v=Dir-Hjt6Rcg&mode=related&search= Several dolphins
http://www.geocities.com/abaccola/porpoise.html Photos plus description

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2.71 Edge waves

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2.72 Beach cusps

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http://aslo.org/photopost/data/506/7Reflective_beach.jpg Photo
http://www.soton.ac.uk/~imw/jpg-Worbarrow/3WB-south-cusp.jpg Photo
http://www.geog.sussex.ac.uk/BAR/images/Kent/sandwich_bay/04140014.jpg Photo: Can you see the cusps left in the debris?

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2.73 Oil and waves

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=00PPPt7EJqo Watch the waves disappear after the sunflower oil is put onto the water.

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2.74 Floating drops

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2.75 Splashing drops

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://gallery.hd.org/_c/natural-science/splash-of-single-drop-in-still-water-pink-and-cyan-rotated-and-cropped-AJHD.jpg.html?sessionVar=spider&sessionVarLocale=de Photo of the Rayleigh jet near the end of a splash
http://www.makezine.com/04/strobe/index.csp?page=last&x-order=date Splash photo
http://www.stanford.edu/~jrdx/fluids.html Scroll down to the two splashing-drop photos

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2.76 Bubbles in soda, beer, and champagne

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Here is a link on the book's discussion of the fact that bubbles in a freshly poured glass of Guinness stout move *down* the side of the glass.
http://www.stanford.edu/group/Zarelab/guinness/index.html
http://www.youtube.com/watch?v=CZqR8PKhunY Bubbles move downward in a glass of espresso
http://www.youtube.com/watch?v=-X30NAc8khc Video of Guinness bubbles
http://www.straightdope.com/classics/a4_198.html Cecil Adam's "Straight Dope" column, about whether tapping the side of a shaken can of beer does any good.

http://www.youtube.com/watch?v=n_H5ZIoZSBo&mode=related&search= Video showing how mechanical disturbance to a supercooled beer causes rapid freezing. Way cool!
http://www.youtube.com/watch?v=4xTHSf1I2BY&NR=1 Similar
http://www.youtube.com/watch?v=KqQu7wIOYwU&mode=related&search= Rapid freezing of beer

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2.77 Soap bubbles and beer foams

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=PLtrByKcClw&mode=related&search= pouring a Guinness to decrease the bubbles

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2.78 Bursting bubbles

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=Cq6gv3woh58 Slow motion video of a water balloon burst at knife point. Watch the way the balloon pulls away from the initial rip.
http://www.youtube.com/watch?v=n3g5MKeqBwI&mode=related&search= Slow motion video of water balloon burst by a fist strike
http://www.pulsephotonics.com/gallery.htm Photos of bursting balloon
http://www.makezine.com/04/strobe/index.csp?page=last&x-order=date Popping a balloon

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2.79 Whales and bubble nets

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://video.google.com/videoplay?docid=7420209913897323484&q=bubble+nets&hl=en Video of whales make a buble net and then feeding on the fish trapped in the net.
http://www.isvr.soton.ac.uk/fdag/UAUA/RESEARCH/Whales/front%20page%20to%20whales_3.htm Discussion. Note the aerial photo where we can see a bubble net set up by whales to trap prey.
http://www.isvr.soton.ac.uk/FDAG/UAUA/RESEARCH/echolocation%20and%20bubbles/echolocation%20and%20bubbles%201.htm Discussion and many photos, showing dolphins using bubble nets to herd fish.

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2.80 Water striders

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos

Go to http://www.gumfrog.com/dailyplanet
and use
Username: previewguest
Password: d1sc0very
I suggest that you click the box that allows the computer to remember this information (or you may have to enter it several times)
Go to March 17, 2008 and choose "Waterbots" (water striding robots)

http://www-math.mit.edu/~dhu/Press/Press03/MIT%20leaps%20to%20solution%20of%20walking-on-water%20mystery.htm Description and videos of a water strider and the robostrider (mechanical water strider) that is described in *The Flying Circus*
http://www.youtube.com/watch?v=0jMpuZVyKCI&mode=related&search= Video of striders
http://www.youtube.com/watch?v=mAahPBwv8wo&NR=1 Note how the water bug responds to the waves
http://www.youtube.com/watch?v=KRuAzh0k3m0 Paper clip floating on water
http://www.youtube.com/watch?v=47UVFTT12Ws Objects floating via surface tension
http://www.youtube.com/watch?v=0jMpuZVyKCI Water strider
http://www.youtube.com/watch?v=756Tk9y0aNg Water strider robot
http://www.youtube.com/watch?v=k310d_egbFk Water striders jumping from water
http://www.youtube.com/watch?v=37Eyq6K0GPg&feature=related Water striders and people disturbing them

Photos
www.aip.org/png/2005/236.htm A demonstration of floating via surface tension
http://demo.physics.uiuc.edu/lectdemo/scripts/demo_descript.idc?DemoID=1144 Photo plus description: coin floating on water
http://www-chaos.engr.utk.edu/~kde/birds/pics/insects/kde.water_strider.09june2001-utktg.01.jpg Photo of water strider
http://www.davismosquito.org/images/waterboatmen2.jpg Photo of waterboatman
http://www.davismosquito.org/images/waterboatmen2.jpg Water strider photo
http://www.fishpondinfo.com/insect3.htm Scroll down to the water strider photo

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2.81 Beading on rods and saliva threads

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.82 Rain harvesting by desert lizards

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2.83 Prey harvesting by shorebirds

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2.84 Drops and liquid films on solid surfaces

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2.85 Breakfast cereal pulling together

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http://capillaryteam.pbwiki.com/General+Information Self-assembly of floating objects using the Cheerios effect
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2.86 Sandcastles

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2.87 Appearance of bad coffee

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2.88 Tears of wine and other liquid surface play

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2.89 Tia Maria worm-like patterns

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=b29nX-TRWzA good video from New Scientist magazine where you can see the dynamic worm-like patterns

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2.90 Patterns in hot coffee and other fluids

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://jfi.uchicago.edu/~tten/Coffee.drops/ Photo plus discussion (click on the button)

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2.91 Patterns in coffee stains

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://jfi.uchicago.edu/~tten/Coffee.drops/ Photo plus discussion (click on the buttons)

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2.92 Breath figures

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2.93 The lotus effect

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http://nanoarchitecture.net/images/211.jpg Water drops beaded up on a lotus leaf
http://www.nanopicoftheday.org/2004Pics/April2004/Superhydrophobia.htm Drops on a superhydrophobic surface
http://en.percenta.com/nanotechnology-lotus-effect.php

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2.94 Aphids and liquid marbles

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.95 Paint brushes, wet hair, and dunking cookies

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http://www.sxc.hu/pic/m/m/ma/marinela/519356_wet_hair_2.jpg Photo

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2.96 Deep-fat frying of potatoes

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2.97 Ducks stay dry

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http://gallery.hampel.com.au/data/531/medium/Victor_Harbor_20060317_001.JPG Photo of ducks with submerged heads (which stay dry)
http://images.worldofstock.com/slides/NBI2614.jpg Photo

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2.98 Cut potatoes, bird droppings, and a car

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2.99 Catapulting mushroom spores

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http://www.herbarium.usu.edu/fungi/FunFacts/Dispersal.htm Scroll down to the last item

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2.100 Waves on a falling stream

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2.101 Water bells, sheets, and chains

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2.102 Stepping on a wet beach and into quicksand

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http://www.youtube.com/watch?v=s0OXGxop3DI quicksand at a beach
http://www.youtube.com/watch?v=B_qRh5Y-hO8 Video of stepping onto wet sand and squeezing a plastic bottle of wet sand
http://www.inspirationline.com/Brainteaser/quicksand.htm Photo plus description

http://www.dellamente.com/quicksand/doc/qsstory.htm Photo plus description
http://www.oramagazine.com/pastIssues/0410-issue/041007t-quicksand.html Photos plus description on how to free a vehicle from quicksand
http://www.youtube.com/watch?v=J_fOmbvnR8k Video dry quicksand (sand liquefaction)

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2.103 Collapse of buildings and a freeway

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http://www.vias.org/physics/example_3_1_11.html Photos of the collapsed Nimitz freeway, plus discussion of the physics
http://www.calstatela.edu/dept/geology/Earthquakes.htm Many photos of earthquake results
http://gees.usc.edu/GEER/Tecoman/c-liq.html Liquefaction in Mexico City, photos plus description
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http://www.answers.com/topic/soil-liquefaction Discussion plus photos
http://www.youtube.com/watch?v=J_fOmbvnR8k Video dry quicksand (sand liquefaction)

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2.104 Short story: Quicksand effect with grain

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=J_fOmbvnR8k Video dry quicksand (sand liquefaction)

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2.105 Pedestrian flow and escape panic

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.106 Sandpiles and self-organizing flow

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2.107 Flows in hourglasses and silos

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://iusti.polytech.univ-mrs.fr/~gep/instability.html Video: watch the waves in the granular material flowing down the slanted plane

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2.108 Brazil-nut effect and oscillating powders

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

Videos
http://www.youtube.com/watch?v=bkZJ4S8kY-o simulation
http://www.youtube.com/watch?v=2JqYyvR55_E&feature=related simulation, rough bodies
http://www.youtube.com/watch?v=sY6z2hLgYuY
http://www.youtube.com/watch?v=sY6z2hLgYuY&mode=related&search= Oscillating power part 1
http://www.youtube.com/watch?v=kWadDtIFPNs&mode=related&search= Oscillating power part 2
http://www.youtube.com/watch?v=3csi-2Hrzhg&mode=related&search= Oscillating power part 3
http://www.youtube.com/watch?v=_bAmjRK9wBA&NR=1
Oscillating power part 4

School activity
http://www.raft.net/ideas/Brazil%20Nut%20Effect.pdf

News article

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2.109 Avalanche balloon

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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http://www.slf.ch/lmstein/lmstein-projects-en.html Photo and discussion; scroll to the bottom
http://www.ur.co.nz/avalanche/equipment.htm Sketch plus discussion

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2.110 Sand ripples and movement

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=N9hyL79pSPI Underwater sand ripples
http://www.youtube.com/watch?v=yP9I1JY4PNA Sand ripples
http://www.danheller.com/images/California/DeathValley/Dunes/sand-ripples-big.jpg Photo
http://www.dtu.dk/centre/BioCom/Research%20areas/Complex%20fluid%20flows,%20free%20surfaces%20and%20instabilities/Separation%20in%20fluid%20flows.aspx Photo and discussion, near the bottom of the page.
http://www.marsartgallery.com/s_sandsofmars.html Sand ripples on Mars

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2.111 Sand dunes

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.nature.com/nature/journal/v437/n7059/fig_tab/nature04058_F1.html Sketches and discussion, from article in Nature

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2.112 Yardangs and other sand cuttings

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://epod.usra.edu/archive/epodviewer.php3?oid=219392 Photo
http://www.virtualbay.co.nz/nature/pics/More-Sand-Ripples.jpg Beach ripples
http://www.gosahara.de/egypt/Yardang.jpg Photo
http://www.gps.caltech.edu/~rkopp/photos/2006Texas/images/23.html Photo
http://www2.nature.nps.gov/geology/geologic_wonders/images/yardang.JPG Photo

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2.113 Snow fences and wind deposits

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://instaar.colorado.edu/tundracam/img_gallery3/snow_fence_in_action.jpg Photo
http://instaar.colorado.edu/tundracam/img_gallery3/snow_fence_in_action.jpg Photo of buried sand fence
http://people.ucsc.edu/~mloik/scapphotos.htm Photos
http://www.unl.edu/nac/aug94/snowfences/snowfence.html Discussion

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2.114 Snow avalanches

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=6qVwIuznFW0 Video of skier who causes an avalanche, which then sweeps down the cameraman
http://www.youtube.com/watch?v=Z2L_3QlEgiI&mode=related&search= Video: snowboarder triggers an avalanche
http://www.youtube.com/watch?v=B0RWLxOFGLY&mode=related&search= Video of avalanches
http://www.youtube.com/watch?v=JhUhhbiNHis&mode=related&search= Video of snowboarder; very, very dangerous: racing with an avalanche. Music by Wolfmother (one of my favorite groups)

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2.115 Long-runout landslides

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=f19Onak6KC0 Japan landslide shot from just to the side of the slide. Scarry stuff.
http://www.ireap.umd.edu/granular/avalanche/welcome.html Photos and discussion
http://www.eos.ubc.ca/research/landslides/landslides_files/image003.gif Photo

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2.116 Rockfalls

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.physicalgeography.net/fundamentals/10x.html Discussion plus photos
http://virtual.yosemite.cc.ca.us/ghayes/happy.htm Happy Isles rockfall site
http://seismo.berkeley.edu/events_of_interest/yosemite/eoi_yos.html Rockfall site

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2.117 Fluttering flags and ribbons

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=GqvfgQo_Gs0 Flapping toilet paper as rolls are thrown through the air (well, actually many rows)
http://www.physicscentral.com/pictures/2001/flags.html APS page on flag flapping

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2.118 Fluttering fountains and pounding waterfalls

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.119 Pulsating fountains

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2.120 Pouring: inverted glass, yard-of-ale

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http://www.physics.umd.edu/lecdem/services/demos/demosi3/i3-13.htm Photo

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2.121 Dripping

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http://commons.wikimedia.org/wiki/Image:Dripping_faucet_1.jpg Photo

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2.122 Soap bubble shapes

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http://homepage.mac.com/keithmjohnson/BubbleArtist.com/ Homepage for Keith Johnson
http://www.youtube.com/watch?v=I0oVdXWjnsc Video
http://www.youtube.com/watch?v=0g5w05UwmQI&mode=related&search= Video
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2.123 Bubble paths

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2.124 Antibubbles

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http://www.uvm.edu/~dahammon/whatsnew/whatsnew01.html Photos plus links to videos
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2.125 Lifting rice with a rod

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2.126 Throwing a discus

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2.127 Javelin throw

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2.128 Two boats drawn together

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=1lxrLu-_qjo Showing the same physics but with an air stream directed through the gap between two empty pop cans

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2.129 Aerodynamics of cables and lines

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http://www.youtube.com/watch?v=i_MQ61vyaSM Vortex shedding by a cylinder
http://www.youtube.com/watch?v=CB2aWiesq0g Same here
http://www.youtube.com/watch?v=SuZRi0q9MAg another one

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2.130 Surf skimmer

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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http://www.youtube.com/watch?v=kxpLexh6IhY Video
http://www.youtube.com/watch?v=VQ9gw-1EVHc Video

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2.131 Buoyancy while turning a corner

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2.132 Wave reflection by sand bars

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2.133 Rain and waves

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2.134 A salt oscillator

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2.135 Salt fingers and a salt fountain

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2.136 Lifting water through tall trees

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2.137 Windrows on water

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2.138 Cloud streets and forest-fire strips

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2.139 Packing M&Ms

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.physics.nyu.edu/~pc86/packing.html Photos

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2.140 A pile of apples

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.141 Powder patterns

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.youtube.com/watch?v=6sonpvUxGL8&mode=related&search= Chladni patterns on large vibrating plate
http://www.youtube.com/watch?v=ZiXNXbGLTR0 Chladni pattern on top plate of violin
http://www.youtube.com/watch?v=nuS4HmaRxrs Chladni pattern reveals the oscillations on a plate at various frequencies
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http://www.youtube.com/watch?v=_bAmjRK9wBA&NR=1
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http://www.youtube.com/watch?v=cXwpPdu9M-U Vibrating powder shows internal flow
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http://www.youtube.com/watch?v=G3s3wmr5Eb4 Vibrating cinnamon powder
http://www.youtube.com/watch?v=qvNyD04nzWc Large oscillations of powder
http://www.youtube.com/watch?v=WmxAQJIVPZA More migration of vibrated powder
http://www.youtube.com/watch?v=7UNtdhxStN0 Rotating thin cylinder of powder

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2.142 A hydraulic oscillator

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

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2.143 Oil blobs moving through glycerin

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2.144 Ball in an air stream

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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Videos

http://www.youtube.com/watch?v=sFKdcsT0S4s Golf ball floating in air stream
http://www.youtube.com/watch?v=oNr-AyGwqag Ping pong ball floating in an air stream
http://www.youtube.com/watch?v=rOfxTgapvjI Pop bottle floating
http://www.youtube.com/watch?v=Vg-_nnYm7mw Balloon
http://www.youtube.com/watch?v=yMA-wgdW3R0 Ball held in a water stream
http://www.youtube.com/watch?v=bYzokcSTUZM The ghost juggler
http://www.youtube.com/watch?v=AvLwqRCbGKY Coanda effect with a spoon in a stream of water
http://www.youtube.com/watch?v=o_-Eph9w6_A Coanda effect with a spoon in a stream of water

Photos

http://www.phys.appstate.edu/demos/fluid/2c20_30.html Photo
http://www.nasm.si.edu/exhibitions/gal109/LESSONS/TEXT/TEASERS.HTM Scroll down
http://www.arborsci.com/CoolStuff/Bernoulli_demos.htm Photo
http://www.columbia.edu/cu/physics/printable/rce/main/demo/fluid.html Scroll down to the "Floating Ball" and then click on the photo

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2.145 Flettner's ship

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The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.grc.nasa.gov/WWW/K-12/airplane/cyl.html Description, illustrations, simulation
http://www.physics.umd.edu/lecdem/services/demos/demosf5/f5-31.htm Demo from University of Maryland

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2.146 Strait of Gibraltar, Strait of Messina, Strait of Sicily

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

The material here is located at www.flyingcircusofphysics.com and will be updated periodically.

http://www.earlham.edu/~samueke/Gibraltar.htm Scroll down to the waves photo
http://envisat.esa.int/instruments/asar/data-app/app/gibraltar.html Photo

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2.147 Granular splashing

This item is discussed in the book ***The Flying Circus of Physics, second edition***, by Jearl Walker, published by John Wiley & Sons, June 2006, ISBN 0-471-76273-3.

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2.148 Slight ridge on moving water

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2.149 Meandering thin streams

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2.150 Shaver clippings and camphor boats on water

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http://www.youtube.com/watch?v=fHsd0pThp88 Video: pepper in water, soap added
http://www.youtube.com/watch?v=Xs0kkom22I8 Similar video
http://users.bigpond.net.au/mechtoys/camphor.html How to make a camphor boat

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2.151 Oil stains on a road

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2.152 Patterns of water drops falling onto glycerin

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2.153 Olive-oil fingers on talc-covered water

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2.154 Chicken-fat oscillator

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