



iStage 2: Smartphones in Science Teaching / Smartphones im naturwissenschaftlichen Unterricht

Apps (last update 26.10.2016)

Name	Operating System	Price	Link
Adidas Snapshot → Please use Vernier Video Physics	iOS	free	https://itunes.apple.com/app/vernier-video-physics/id389784247?mt=8
Accelerometer Monitor	Android	free	https://play.google.com/store/apps/details?id=com.lul.accelerometer
Angle and slope measurement	Android	free	https://play.google.com/store/apps/details?id=kr.sira.protractor
Angle meter	iOS	free	https://itunes.apple.com/app/angle-meter-free/id436775826?mt=8
Audio Spectrum Analyzer	Android	free	https://play.google.com/store/apps/details?id=com.xyz.fft
British Birds Lite	iOS	free	https://itunes.apple.com/app/british-birds-lite/id332733801?mt=8
Color Grab	Android	free	https://play.google.com/store/apps/details?id=com.loomatix.colorgrab
ColorAssist Free Edition	iOS	free	https://itunes.apple.com/app/colorassist-free-edition/id495034867?mt=8
Compass	Android	free	https://play.google.com/store/apps/details?id=kr.sira.compass
Compass	iOS	free	https://itunes.apple.com/app/compass-for-ipad-free/id378640003?mt=8
DigiPro Spectrum Analyzer	Android	1,89 €	https://play.google.com/store/apps/details?id=b4a.digipro
Distance and Parallax	Android	free	https://play.google.com/store/apps/details?id=com.alextooma.DistanceAndParallax
Decibel Meter	Android	free	https://play.google.com/store/apps/details?id=cn.menue.decibelmeter
Decibel Ultra	iOS	free	https://itunes.apple.com/app/decibel-ultra/id410139517?mt=8
Distance and Height	Android	free	https://play.google.com/store/apps/details?id=com.alextooma.distanceandheight
Distance measurement	Android	free	https://play.google.com/store/apps/details?id=kr.sira.distance
Easy Measure	iOS	free	https://itunes.apple.com/app/easymeasure-measure-your-camera!/id349530105?mt=8
FFT Spectrum Analyzer	Android	free	https://play.google.com/store/apps/details?id=com.xyz.fft
FrequenSee	Android	free	https://play.google.com/store/apps/details?id=com.DanielBach.FrequenSee
Google Maps	Android	free	https://play.google.com/store/apps/details?id=com.google.android.apps.maps
Google Maps	iOS	free	https://itunes.apple.com/de/app/google-maps/id585027354?mt=8
GPS Essentials → Please use motionx-gps	iOS	1,99 €	https://itunes.apple.com/app/motionx-gps/id299949744?mt=8
Height and Distance	iOS	1,99 €	https://itunes.apple.com/app/too-big-too-far-height-distance/id372117409?mt=8
Height and Pressure	Android	free	https://play.google.com/store/apps/details?id=com.alextooma.heightmeasurement
iAnalyzer lite	iOS	free	https://itunes.apple.com/app/ianalyzer-lite/id342456044?mt=8
ISS Detector	Android	free	https://play.google.com/store/apps/details?id=com.runar.issdetector
iRig Recorder	Android	free	https://play.google.com/store/apps/details?id=com.ikmultimediaus.android.irigrecorder





Name	Operating System	Price	Link
iRig Recorder	iOS	free	https://itunes.apple.com/app/irig-recorder-free/id426702477?mt=8
Magnetic Field Detecor/Sensor	Android	free	https://play.google.com/store/apps/details?id=com.go.magneticsensor
Magnetometer	iOS	0,99€	https://itunes.apple.com/app/magnetometer-gaussmeter/id944150988?mt=8
My Altitude	iOS	free	https://itunes.apple.com/app/my-altitude/id465262694?mt=8
n-Track Tuner	Android	free	https://play.google.com/store/apps/details?id=com.ntrack.tuner
Planetarium	Android	free	https://play.google.com/store/apps/details?id=com.andscalo.id.planetarium
Physics Toolbox Accelerometer	Android	free	https://play.google.com/store/apps/details?id=com.chrystianvieyra.android.physicstoolboxaccelerometer
Physics Toolbox Roller Coaster	Android	free	https://play.google.com/store/apps/details?id=com.chrystianvieyra.android.physicstoolboxrollercoaster
Regression Calculator →Please use Vernier Graphical Analysis	iOS	free	https://itunes.apple.com/app/vernier-graphical-analysis/id522996341?mt=8
Regression Calculator →Please use Vernier Graphical Analysis	Android	free	https://play.google.com/store/apps/details?id=com.vernier.android.graphicalanalysis
Star Chart	iOS	free	https://itunes.apple.com/app/star-chart/id345542655?mt=8
Star Chart	Android	free	https://play.google.com/store/apps/details?id=com.escapistgames.starchart
Sensor Kinetics	Android	free	https://play.google.com/store/apps/details?id=com.innoventions.sensorkinetics
Sensor Kinetics	iOS	free	https://itunes.apple.com/app/sensor-kinetics/id579040333?mt=8
Sensor Kinetics Pro	Andoid	2,40 €	https://play.google.com/store/apps/details?id=com.innoventions.sensorkineticspro
Sensor Kinetics Pro	iOS	0,99 €	https://itunes.apple.com/app/sensor-kinetics-pro/id623633248?mt=8
Sensor Log	iOS	1,99€	https://itunes.apple.com/app/sensorlog/id388014573?mt=8
Smart Compass	Android	free	https://play.google.com/store/apps/details?id=kr.sira.compass
Smart Distance	Android	free	https://play.google.com/store/apps/details?id=kr.sira.distance
Smart Measure	Android	free	https://play.google.com/store/apps/details?id=kr.sira.measure
Smart Protractor	Android	free	https://play.google.com/store/apps/details?id=kr.sira.protractor
Solar Walk	iOS	2,99 €	https://itunes.apple.com/app/solar-walk-3d-sonnensystem/id347546771?mt=8
Sound Meter	Android	free	https://play.google.com/store/apps/details?id=com.bti.soundMeter
Sound Spectrum Analyzer→Please use SpecScope Spectrum Analyzer	Android	free	https://play.google.com/store/apps/details?id=com.nfx.specscope
SPARKvue	iOS	free	https://itunes.apple.com/app/sparkvue/id361907181?mt=8
SPARKvue	Android	free	https://play.google.com/store/apps/details?id=com.isbx.pasco.Spark
SpecScope Spectrum Analyzer	Android	free	https://play.google.com/store/apps/details?id=com.nfx.specscope
Spectrum Analyzer	Android	free	https://play.google.com/store/apps/details?id=sk.bielyvlk.spectrumanalyzer
Stellarium mobile	Android	1,99 €	https://play.google.com/store/apps/details?id=com.noctuasoftware.stellarium
Stellarium mobile	iOS	2,99 €	https://itunes.apple.com/app/stellarium-mobile/id643165438?mt=8
Theodolite	iOS	5,99 €	https://itunes.apple.com/app/theodolite/id339393884?mt=8
Theodolit Droid	Android	free	https://play.google.com/store/apps/details?id=com.shopzeus.android.majorforms_1012
UK Bird Sounds	Android	free	https://play.google.com/store/apps/details?id=com.luminousapps.ukbirdssounds
Vernier Video Physics	iOS	4,99 €	https://itunes.apple.com/app/vernier-video-physics/id389784247?mt=8
VidAnalysis	Android	free	https://play.google.com/store/apps/details?id=com.vidanalysis.free
X-Sensor	iOS	1,99 €	https://itunes.apple.com/app/x-sensor/id340527664?mt=8



Further resources

Weiterführende Materialien

Tracker: <https://www.cabrillo.edu/~dbrown/tracker/>
Geogebra: <http://wiki.geogebra.org/>

iSky: Smart Measurements of the Heavens / iSky: Die Vermessung des Himmels
Instruction to build a device for measuring / Anleitung zum Bau eines Messgerätes:
<http://usuaris.tinet.cat/pcompte/mobile>

Earth's Magnetic Field / Das Magnetfeld der Erde:
Instruction to build a Helmholtz coil / Anleitung zum Bau einer Helmholtzspule
http://www.science-on-stage.de/download_unterrichtsmaterial/Instructions_to_make_Helmholtz_coil.pdf

Moodle: <http://moodle.science-on-stage.com/mod/data/view.php?id=289>

Going for a Song / Alle Vögel sind schon da:
http://www.science-on-stage.de/download_unterrichtsmaterial/istage_2_going_for_a_song_risk_assessment_form.pdf



Going for a Song / Alle Vögel sind schon da

GENERAL RISK ASSESSMENT FORM						
a. Dept assessment no (assigned by risk assessor)			b. Overall assessment no (to be assigned by H&S Manager)			
c. Date first prepared: 1st March 2014			d. Prepared by: Richard Spencer			
e. Dates of previous reviews						
f. Date of this current reviewed version:			g. Prepared by:			
h. Date next review due (Must not exceed one year from date of previous assessment)						
(Note: Date might be sooner if circumstances change and assessment therefore no longer valid)						

The data provided will be used for the purpose of provision of education, training and instruction, administration, marketing and promotion, health, safety and welfare, recruitment, security and prevention and detection of crime. Personal data is collected and processed in accordance with the Data Protection Act 1998

1. Operations covered by this assessment: "Going for a Song" Monitoring of bird sound in two diverse areas: i. a busy urban road (state location) ii. a country lane		
2.Details of any person(s) specifically at risk: <ul style="list-style-type: none"> • Students • Staff • Members of the general public 		
3. Hazards	4. Nature of risks	5. Existing control measures
Urban Road: 1.Road traffic	<ul style="list-style-type: none"> • Trips and fall • RTA • Collision • Broken bones • Fatality 	Activity (by college students) arranged with teaching staff. Using a 'Smart phone' to record bird sounds, on a busy urban road, was investigated at peak times of the day. The recordings to take place at the road side away from the kerb
2.Lack of concentration	<ul style="list-style-type: none"> • RTA • collision 	Area to be investigated away from the kerb
3.Inappropriate behaviour: Driver perception /provocation	<ul style="list-style-type: none"> • Annoyance of road users • Distraction of road users 	Telephones directed away from motorists / road users If asked, students to explain actions / report to college staff





Country Lane: 4.Unfamiliar location	<ul style="list-style-type: none"> • Disorientated • Lost • Trips, fall 	Students to inform staff (parents if out of college / weekend) of location and expected return time.
5.Unsupervised activity	<ul style="list-style-type: none"> • Inappropriate behaviour • Trips, fall 	Work carried out in pairs or larger group. Students are capable, knowledgeable and responsible members of college.
6.Inappropriate behaviour: Perception of people at the location	<ul style="list-style-type: none"> • Irritation / Aggravation 	As above (5) Smart phone used to record birds sound away from activity (people: walkers / runners) at location

1.Risk rating factor (based on existing controls) (See calculation guidance below)
(Either by individual hazard/risk or overall rating, whichever deemed appropriate to circumstances)

(A) Severity	(B) Probability	(C) Risk Rating (= A x B)	Action Priority
1) 5	2	10	Low priority in all instances
2) 5	2	10	
3) 3	3	9	
4) 3	2	6	
5) 3	2	6	
6) 3	3	9	

2.Activities identified as requiring more specific assessments: N/A

3.Has a Further Control Measures Action Plan been prepared in relation to this Risk Assessment? Yes / No

NOTES: Calculation of risk rating

A : Severity of incident	B: Probability of occurrence	Determining action priority
Insignificant 1	Very unlikely 1	1 – 10 Low priority (Action if reasonably practicable; otherwise, acceptable)
Minor 2	Unlikely 2	11 – 15 Medium priority (Must take action)
Significant 3	Possible 3	16 – 25 High priority (Must take action)
Major 4	Likely 4	
Fatality 5	Very likely 5	

SIGNATURES

Prepared by: Signature _____ Print name: _____
 Position: _____ Date: _____
 Reviewed & authorised by line manager: Signature _____ Name: _____ Date: _____

Note: The line manager is accountable for the risk assessment and is responsible for monitoring any related action plan. He/she must inform the Health & Safety Manager when the action plan has been completed

For Health and Safety Team use only

Reviewed by Health and Safety Manager (for completeness, not technical knowledge): _____

